THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

SUB GRADE

PLUMBING

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

SEE 2 RISERS
NO. 3 RISERS

SKILLING HELLE CHRISTIANSEN & ROBERTSON
STRUCTURAL ENGINEERS
FORMERLY WORTHINGTON SKILLING HELLE & JACKSON

JAROS BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TENANT STORAGE
EL. 242'-0"

TOWER 21
EL. 242
FOR PIPING WITHIN TOWER
SEE DWG. P-J-2

NORTH PROJECTION

STAIR 1-3

STAIR 4-7

SHAFT 1

SHAFT 2

SHAFT 5

SUMP #3

SUMP PIT

BUTTRESS

TRENCH

KEY PLAN

NORTH

SCALE: 1/16"-1'-0"

MATCH LINE N 4788.00

FOR CONT. SEE DWG. P-J-2

NOTES
FOR GENERAL NOTES & SYMBOLS SEE DWG. P-X-1

SEE SIMILARITIES OF SUMPS & EJECTORS DWG. P-X-12

TEMPORARY 6" DRY STANDPIPE - PROVIDE SITING 2½" HOSE VALVES 150' MINIMUM SPACE FLOOR.

NO.	DATE	REVISIONS	BY
10	7-22-70	84-39	GuC
9	5-20-70	41-53	C
8	5-20-70	26-64	GuC
7	12-19-69	54-5	GuC
6	9-15-69	86-15	JC
5	8-5-69	86-12	JC
4	3-4-69	86-10	GuC
3		86	C
2			
1			

NO.	DATE	REVISIONS	BY
12	5-8-72	16-191	RG
11	6-27-71	86-182	MM

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DATE

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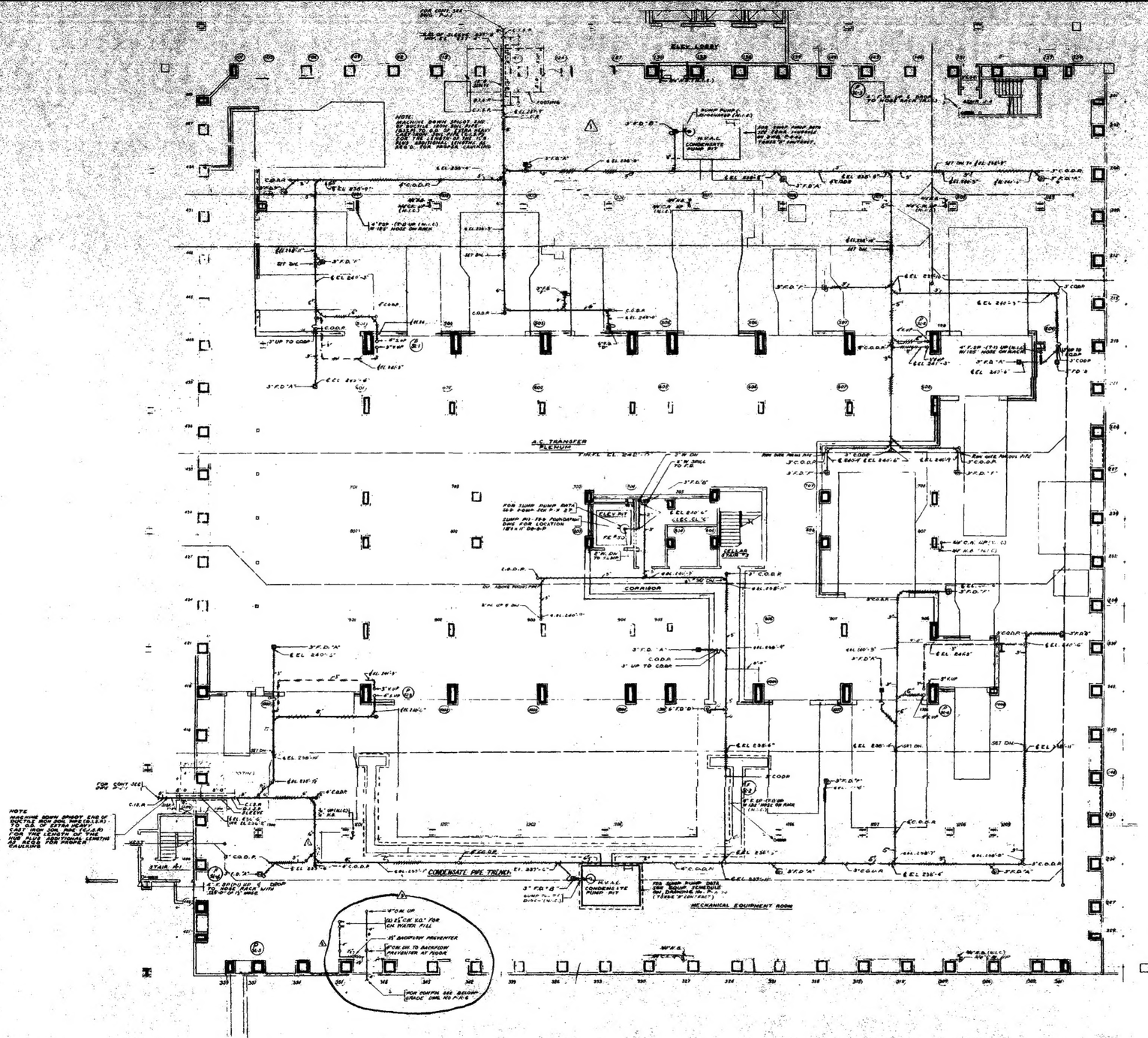
WORTHINGTON, SKILLING, HELLE & JACKSON STRUCTURAL ENGINEERS	JAROS, BAUM & BOLLES MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES ELECTRICAL ENGINEERS	THE PORT OF NEW YORK AUTHORITY PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'J'
SUB-LEVEL 5 EL 242

DRAWN	C.C.	CHECKED	F.J.S.
SCALE	1/16"=1'-0"	DATE	5-16-69
PROJECT NUMBER		SURVEY	
DRAWING NUMBER	P-J-1		



CONTRACT BID DRAWING date

REVISIONS

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DATE

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THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT
EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS
JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS
THE PORT OF NEW YORK AUTHORITY — PAVING, UTILITIES, FOUNDATIONS

1/8"=1'0" SCALE 0 5 0 5 10 15 20 FEET

TITLE: SUB-GRADE PLAN-ZONE J
SUB-LEVEL 5 - EL 24.2
TOWER A

DRAWN	G.C.	CHECKED	F.A.S.
SCALE	1/8"=1'-0"	DATE	5-15
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-J-2		

MATCH LINE - N 4788.00
FOR CONTINUATION SEE DWG. P-J-1

TOWER 'A'
EL. 242
FOR PIPING WITHIN TOWER
SEE DWG. P-J-2

ABSOLUTE OIL SEPERATOR
6" PIPE SIZE 185 GPM
STEEL EXTENSIONS AS REQ'D
SCORIATED COVER

STEAM METER ROOM
EL. 242'-0"

REF. FAN ROOM
EL. 242'-0"

TOWER 'B'
EL. 242
FOR PIPING WITHIN TOWER
SEE DWG. P-K-4

TENANT STORAGE
EL. 233'-0"

STORAGE AREA

UNASSIGNED AREA #5

UNASSIGNED AREA #6

FAN ROOM A

AREAS BETWEEN TANKS

KEY PLAN

SECTION A-A

SECTION B-B

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-K-01
2. TEMPORARY DRY STANDPIPE - PROVIDE (2) TWO 2½" HOSE VALVES 6'-0" MIN. ABOVE FLOOR
3. FOR TYPICAL TRENCHING DETAILS SEE DWG. P-J-15
4. FOR SITE SITE LOCATION OF SECTION "A-A" & "B-B" SEE DWG. P-K-1
5. FOR PLUMBING INDICATED ON THIS DRAWING & PIPING NOT CLEARLY SHOWN, SEE DRAWINGS FOR ARCHITECTURAL, STRUCTURAL, MECHANICAL & ELECTRICAL TRADES. SEE FOUNDATION DWGS BY OTHERS
6. ALL PIPING EXPOSED TO THE WEATHER SHALL BE EPOXY COATED UP TO THE COMM. WITH G.C.D.R.

NO.	DATE	REVISIONS	BY
10	6-5-70	SK. 85	DT
9	5-20-70	SK. 67	EJG
8	3-10-70	SK. 33	J.L.
7	1-19-70	SK. 16	EJG
6	12-10-69	SK. 16	EJG
5	6-15-69	SK. 23	J.G.
4	6-3-69	SK. 15	J.G.
3	5-19-69	SK. 14	J.G.
2	5-1-69	SK. 6	J.G.
1	3-27-69	SK. 2	J.G.

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JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

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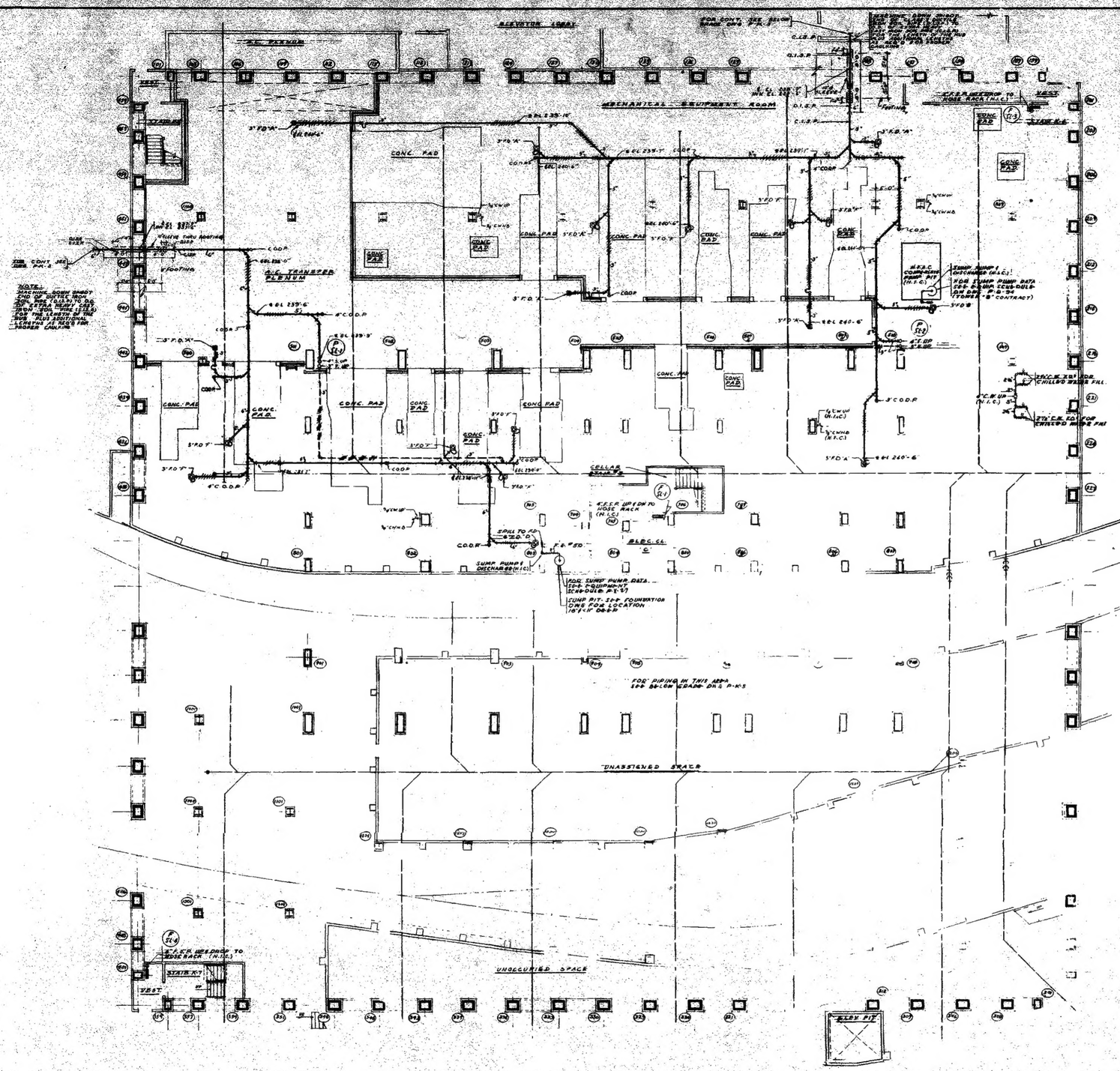
PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'K'
SUB-LEVEL 5-EL 242

DRAWN	G.C.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-K-3		



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MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS — ARCHITECT
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS

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REVISIONS

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CHIEF, PLANNING DIVISION
DATE

TITLE: SUB-GRADE PLAN-ZONE 'K' SUB-LEVEL 5 - FL 242 TOWER 'B'

DRAWN	G.C.	CHECKED	F.A.S.
TRACED		DATE	5-15-68
PROJECT ENGINEER		SHEET	OF
DRAWING NUMBER	P-K-4		

UPPER PART OF UNOCCUPIED AREA

SUBSTATION No. 3 EL. 250'-0"

TENANT STORAGE EL. 253'-0"

TOWER "A" EL. 253 FOR PIPING WITHIN TOWER SEE DWG. P-A-3

TENANT STORAGE EL. 253'-0"

UPPER PART OF EMERGENCY GENERATOR RM. PE

STAIR U-1

STAIR U-2

STAIR U-4

SHAFT "4"

SHAFT "5"

SHAFT "6"

ELEVATOR LOBBY

SEE NOTE No. 5

SEE NOTE No. 6

SEE DETAIL ON DWG. P-A-18

SEE DETAIL ON DWG. P-A-19

SEE DETAIL ON DWG. P-A-3

SET ON UNDER EL. 254 SLAB

KEEP TIGHT TO EL. 257 SLAB

UNDER EL. 257 SLAB

NORTH PROJECTION

PLATFORM A

PLATFORM B

PLATFORM C

TRACK 1

TRACK 2

TRACK 3

MATCH LINE N 4735
FOR CONTINUATION SEE DWG P-K-6

NOTE
1. FOR GENERAL NOTES & SYMBOLS SEE DWG P-K-7
2. TEMPORARY 6" DRY STANDPIPE - PROVIDE (2) 2½" HOSE VALVES 5'-0" MINIMUM ABOVE FLOOR.
3. FOR PIPING TO TOILETS ON PLATFORM SEE DETAIL SHEET DWG. No. P-K-18.
4. FOR ACTUAL LOCATION OF F.H. CABINETS & BOX ROUNDS ON PLATFORM SEE ARCHITECTURAL DRAWINGS.
5. INSTALL PIPING WHERE REMOVAL OF EXISTING PATH TUBES.

REVISIONS NO.	DATE	SUB. NO.	BY
10	5-20-70	SG-60	MG
9	3-20-70	SG-67	SJC
8	3-10-70	SG-66	SJC
7	12-23-69	24-16	EJ
6	11-19-69	-16	SJC
5	11-19-69	SG-5	SJC
4	6-3-69	SG-15	JC
3	5-19-69	SG-10	BU
2	1-23-69	SG-6	JC
1	1-9-1969	SG-2	JC

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JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'J' SUB-LEVEL 4-EL 253'

DRAWN	J.C.	CHECKED	E.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-69
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P.J-5		

MATCH LINE
FOR CONTINUATION SEE DWG. P-Y-5

TOWER A
FOR PIPING WITHIN TOWER SEE DWG. P-A-3

H.V.A.C. PERMAINTAINENCE ROOM

UPPER PART OF GENERATOR ROOM

UPPER PART OF STEAM METER ROOM EL. 248'-0"

UPPER PART OF STORAGE EL. 248'-0"

REFRIGERATION ROOM-OPERATING LEVEL

UPPER PART OF REFRIGERATION EXHAUST PLENUM AT EL. 242'-0"

LOADING PLATFORM EL. 250'-0"

TOWER B
EL. 253
FOR PIPING WITHIN TOWER SEE DWG. P-B-3

WORK PLATFORM EL. 249'-0"

TENANT STORAGE EL. 233'-10"

TRANSFORMER ROOM

UPPER PART OF AREA BETWEEN TRACKS

UPPER PART OF UNASSIGNED AREA

SOUTH PROJECTION

DETAIL OF VALVE OUTLETS FOR H.V.A.C.
NO SCALE

DETAIL OF FILL CONNECTIONS
NO SCALE

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-X-21
2. TEMPORARY 6" DRY STANDPIPE, PROVIDE #1 TWO 2½" HOSE VALVES. 3'-0" MIN. ABOVE FLOOR
3. FOR PIPING TO TOILETS ON PLATFORM SEE DETAIL SHEET DWG. NO. P-X-18.
4. FOR ACTUAL LOCATION OF F.H. CABINETS & SIAMESE HYDRANTS ON PLATFORM SEE ARCHITECTURAL DRAWINGS.
5. 3" PRV IN REFRIG'N. ROOM AT DEFAULT PRESSURE OF 75 PSI.

NO.	DATE	BUL. NO.	BY
10	1-27-71	SK-118	SK
9	1-21-70	C-99	JH
8	3-17-70	DC-81	JJ
7	3-20-69	SK-64	MH
6	1-22-69	C-33	TC
5	3-26-68	SK-47	MH
4	1-22-68	SK-12	TC
3	3-11-69	SK-10	TC
2	-	-	-
1	-	-	-

REVISIONS

APPROVED
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JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
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PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'K'
SUB-LEVEL 4-EL 250'-253'

DRAWN	J.C.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-K-6		

PARKING AREA "I"

PARKING AREA
EL. 264'-0"

TOWER "A"
EL. 264
FOR PIPING WITHIN TOWER
SEE DWG. P-A-5

TENANT STORAGE
EL. 264'-0"

FALLOUT SHELTER

ELEVATOR LOBBY

A.C. PLENUM

RAMP U/P TO EL. 264'-0"

EL. 264'-0"

PATH MEZZANINE
EL. 284'-0"

AUXILIARY SERVICES

ESCALATOR #1

ESCALATOR #2

STAIR #1

STAIR #2

STAIR #3

KEY PLAN

NORTH

NORTH PROJECTION

MATCH LINE N 473580
FOR CONTINUATION SEE DWG P-K-8

NOTE
1. FOR GENERAL NOTES & SYMBOLS SEE DWG P-K-1
2. TEMPORARY 6" DRY STANDPIPE - PROVIDE (2) TWO 2½" HOSE VALVES 5'-0" MINIMUM ABOVE FLOOR.

3. SUBSTITUTE FIRE HOSE CABINETS, AS MANUFACTURED BY J. L. INDUSTRIES MODEL "ACADEMY" 20G½" WITH STAINLESS STEEL FRONTS IN PUBLIC AREAS AT PATH PLATFORM AND MEZZANINE LEVELS IN LIEU OF SPECIFIED SIZE HOSE CABINETS IN THESE AREAS

REVISIONS						
			10	3-20-70	SG-33	SJC
			9	3-20-70	SG-66	SJC
			8	12-19-69	SG-16	JJ
			7	12-19-69	SG-16	SJC
			6	11-19-69	SG-5	SJC
			5	6-3-69	SG-15	JC
			4	5-9-69	SG-10	BH
15	11-7-74	SG-71	13	1-27-69	SG-6	FU
12	7-12-71	SG-161	12	9-1-68	SG-5	JE
11	5-10-10	SG-60	11	7-15-68	SG-5	JC
NO.	DATE	TRIAL NOS.	BY	NO.	DATE	TRIAL NOS. BY

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PAYING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE "J"
SUB-LEVEL 3-EL 264'

DRAWN	J.C.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-J-57		

MATCH LINE - N 4780.00
FOR CONTINUATION SEE DWG. P-J-7

TOWER 'A'
FOR PIPING WITHIN TOWER EXCEPT AS NOTED SEE DWG. P-A-5

OPERATING LEVEL OF REFRIGERATOR ROOM
EL. 265'-0"

SWITCHGEAR ROOM
EL. 264'-0"

PARKING AREA
EL. 264'-0"

TOILETS LOCKERS
EL. 268'-6"

CONTROL ROOM
EL. 268'-6"

TOWER 'B'
EL. 264
FOR PIPING WITHIN TOWER EXCEPT AS NOTED SEE DWG. P-B-5

TENANT STORAGE
EL. 264'-0"

PARKING AREA
EL. 264'-0"

SOUTH PROJECTION

EAST GARAGE EXHAUST PLENUM

KEY PLAN

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-X-21
2. TEMPORARY 6" DRY STANDPIPE: PROVIDE 2½" TEE & 2½" HOSE VALVES 2'-0" MIN. ABOVE FLOOR
3. INSTALL PIPING AFTER REMOVAL OF EXISTING PATH TUBES.
4. FOR PIPING TO TOILETS ON PLATFORM SEE DETAIL SHEET DRAWING NO. P-X-18.
5. PIPING FROM THE STEAMLEG SHALL BE EPOXY COATED.

NO.	DATE	DWG. NO.	BY
10	2-3-71	56-165	BV
9	10-6-70	56-173	JL
8	1-27-70	56-98	RJC
7	7-27-70	56-98	RJC
6	3-17-70	56-51	JL
5	12-30-69	56-33	JL
4	10-19-69	56-10	RJC
3	5-21-69	56-10	BV
2	9-10-68	56-5	JL
1	9-3-68	56-2	JL

REVISIONS

NO.	DATE	DWG. NO.	BY

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WORTHINGTON, SKILLING, HELLE & JACKSON STRUCTURAL ENGINEERS	JAROS, BAUM & BOLLES MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES ELECTRICAL ENGINEERS	THE PORT OF NEW YORK AUTHORITY PAVING, STREETS, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'K'
SUB-LEVEL 3 EL 264

DRAWN	J.C.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT		SHEET	OF
DRAWING NUMBER	P-K-8		

PARKING AREA
EL. 274'-0"

TOWER "A"
EL. 274
FOR PIPING WITHIN TOWER
SEE DWG. P-A-6

TENANT STORAGE
EL. 274'-0"

PRIMARY DISTRIBUTION ROOM
EL. 274'-0"

STORAGE
EL. 274'-0"

UPPER LEVEL OF PATH MEZZANINE
EL. 283'-0"

RAMP 'K'

RAMP 'J'

RAMP 'H'

KEY PLAN

NORTH PROJECTION

AUX. SERVICES

AUX. SERVICES

MATCH LINE N 7+88.00
FOR CONTINUATION
SEE DWG P-K-10

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-A-17
2. TEMPORARILY 6" DRY STANDPIPE - PROVIDE WITH 6" HOSE VALVES 5'0" ABOVE FLOOR.
3. CONTRACTOR TO PROVIDE & INSTALL COPPER PAN (FOR SIZE & LOCATION SEE ELECT. DRAWINGS) FROM P HAZER TO ELEV. 274 SCAB.

NO.	DATE	DESCRIPTION	BY
10	5-11-70		SJC
9	5-19-70		SJC
8	12-19-69		J.T.
7	12-19-69		SJC
6	12-19-69		SJC
5	12-5-69		J.C.
A	5-19-69		SJC
4	1-7-69		F.U.
3	9-17-68		SJC
2	7-10-68		SJC
1	5-10-68		T.G.

REVISIONS

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MINORU YAMASAKI & ASSOCIATES — ARCHITECT
MINORU YAMASAKI; ARCHITECT

EMERY ROTH & SONS
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PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'J'
SUB-LEVEL 2-EL 274

DRAWN	W.F.M.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-J-9		

1/16"=1'-0"
0 5 10 20 30 40
Scale

MATCH LINE — N 4735.00
FOR CONTINUATION SEE DWG. P-J-9

TOWER "A"
FOR PIPING WITHIN TOWER SEE DWG. P-A-

STAIR K-1

UPPER LEVEL OF REFRIGERATION ROOM
EL. 257'-0"

UPPER PART OF TOILETS & LOCKERS
EL. 268'-0"

UPPER PART OF CONTROL ROOM
EL. 269'-6"

VISITORS GALLERY

OBSERVATION DECK EL. 268'-0"

STAIR K-11

UPPER PART OF EL. 284' LEVEL

UPPER PART OF LOADING DOCK EL. 284'-0"

UPPER PART OF SUPPORT AREA FOR PIPING IN THIS AREA SEE PART PLAN ON DWG. P-X-21

KEY PLAN

TENANT STORAGE
EL. 274'-0"

UPPER LEVEL OF SWITCHGEAR ROOM
EL. 264'-0"

UPPER PART OF REFRIGERATION ROOM EXHAUST PLENUM

TRUCK EXHAUST PLENUM FROM EL. 274'-0"

RAMP "J" UP TO EL. 284'-0"

TOWER "B"
EL. 274
FOR PIPING WITHIN TOWER SEE DWG. P-B-6

STAIR K-5

STAIR K-4

PARKING AREA
EL. 274'-0"

SOUTH PROJECTION

RAMP "H" DOWN TO EL. 274'-0"

STAIR K-3

SHAFT "B"

FOR PIPING THIS AREA SEE DWG. IN P-X-A

STAIR K-6

STAIR K-7

TENANT STORAGE
EL. 274'-0"

PARKING AREA
EL. 274'-0"

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-X-23
2. TEMPORARY DRY STANDPIPE. PROVIDE (2) TWO 2½" HOSE VALVES, 2'-0" ABOVE FLOOR.

NO.	DATE	DESCRIPTION	BY
10	10-6-71	56/173	ES
9	1-27-71	56-118	SJC
8	7-22-70	56-99	SJC
7	5-13-70	56-51	JJ
6	2-10-70	56-30	SJC
5	5-26-70	56-33	JJ
4	12-19-69	56-16	SJC
3	3-7-69	56-2	SJC
2	1-30-68	56-6	JC
1	9-1968	56-2	JE

REVISIONS

APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: SUBGRADE PLAN-ZONE 'K'
SUB-LEVEL 2-EL. 274

DRAWN	W.F.M.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
PROJECT		WEIGHT	

DRAWING NUMBER: P-K-10

1/16"-1'-0" scale 0 10 20 30 40 feet

PARKING AREA
EL. 284'-0"

RAMP 'D'

RAMP 'C'

NORTH PROJECTION

TOWER 'A'
EL. 284
FOR PIPING WITHIN TOWER
SEE DWG. P-A-7

TEL ROOM
EL. 284'-0"

STAIR J-1

SHAFT 1

SHAFT 2

SHAFT 3

SHAFT 4

SHAFT 5

SHAFT 6

STAIR J-2

STAIR J-3

STAIR J-4

STAIR J-5

STAIR J-6

STAIR J-7

STAIR J-8

STAIR J-9

RAMP 2

RAMP 3

EL. 284'-0"

EL. 279'-3"

EL. 274'-0"

UPPER LEVEL OF ELECTRICAL ROOMS
EL. 274'-0"

PARKING AREA

PATH DOME

ELEVATOR #1

ELEV. LOBBY

ELEV. PIT DR.

SUMP PIT

SUMP PIT

NORTH

KEY PLAN

TOWER A

TOWER B

FOR CONTINUATION
SEE DWG P-K-12

NOTE
1 FOR GENERAL NOTES & SYMBOLS SEE D.W.G. P-K-1
2 FOR LOCATIONS OF PENETRATIONS THRU EXT. WALL SEE P-J-1 & P-K-2, 3, & 5 (W/ LOCATION CONTRACT)
3 TEMPORARY C. DRY STANDPIPE - PROVIDE (3) 2½" DIA. HOSE VALVES 3'-0" MINIMUM ABOVE FLOOR.
4 INSTALL PIPING AFTER REMOVAL OF EXISTING PATH TUBES

NO.	DATE	REVISIONS	BY
10	1-13-93	SK-236	RB
9	7-12-91	SK-161	JAC
8	3-19-90	SK-66	DAC
7	12-19-89	SK-16	RAC
6	12-19-89	SK-5	JAC
5	12-19-89	SK-36	JC
4	9-19-88	SK-10	BV
3	7-20-88	SK-6	K.M.
2	9-17-87	SK-2	A.F.
1	7-10-85		J.L.

APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'J'
SUB-LEVEL 1-EL. 279-284

DRAWN	J.E.	CHECKED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-7
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-J-11		

TOWER "A"
EL. 284
FOR PIPING WITHIN TOWER
SEE DWG. P-A-7

TOWER "B"
EL. 284
FOR PIPING WITHIN TOWER
SEE DWG. P-B-7

PARKING AREA
EL. 284'-0"

TENANT STORAGE
EL. 284'-0"

RAMP 'B'

RAMP 'A'

RAMP 'N'

RAMP 'L'

STAIR K-6

STAIR K-7

STAIR K-8

SOUTH PROJECTION

Note:
FOR PIPING IN THIS AREA & AREAS ABOVE & BELOW
SEE DWG. No. P-1 "CAR POOL PARKING SUB LEVEL-1"

NOTE:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-X-27.
2. PIPING SHOWN DOUBLE LINED IS TENTATIVE. CONTRACTOR SHALL NOT INSTALL UNTIL INTERFERENCES OF THIS & ALL OTHERS ARE RESOLVED.
3. TEMPORARY 6" DEV. STANDPIPE REQUIRE (1) 7500 2½" HOSE VALVES. 5"-0" MIN. ABOVE ROOF.

BULLETINS NOT NUMBERED ARE IN PROGRESS

REVISIONS				REVISIONS				REVISIONS			
20	11-14-74	56 180	SJK	10	2-27-68	54-138	F.D.				
19	7-10-72	54 223	SJC	9	7-28-70	56 99	SJC				
18	6-19-72	54 095	F.D.	8	3-11-70	54 51	F.D.				
17	5-16-71	56 188	RB	7	3-10-70	56 50	SJC				
16	5-18-70	56 208	RB	6	12-19-69	54-25	F.D.				
15	5-18-70	56 207	RB	5	11-19-69	54-16	SJC				
14	1-12-70	54 197	F.D.	4	3-21-68	54-10	J.C.				
13	10-8-71	54-193	F.D.	3	2-22-68	54-5	E.V.				
12	2-22-71	56-168	S.A.	2	12-15-67	54-2	F.D.				
11	8-27-71	54 141	L.M.	1	7-10-67		J.C.				

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DATE

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THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES MINORU YAMASAKI, ARCHITECT	EMERY ROTH & SONS RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, HELLE & JACKSON STRUCTURAL ENGINEERS	JAROS, BAUM & BOLLES MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES ELECTRICAL ENGINEERS	THE PORT OF NEW YORK AUTHORITY PAVING, STABILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE 'K'
SUB-LEVEL 1-EL 279-3-284

DRAWN	J.E.	CHECKED	F.A.S.
SCALE	1/8" = 1'-0"	DATE	35-15-68
CONTRACT		DRAWING	P-K-12

MATCH LINE N 47780.00
FOR CONTINUATION
SEE DWG. P-J-11

TOWER "A"
EL. 284
FOR PIPING WITHIN TOWER
SEE DWG. P-A-7

RAMP "B"

RAMP "A"

PARKING AREA
EL. 284'-0"

RAMP "J"
DN TO EL. 274'-0"

RAMP "K"
DN TO EL. 274'-0"

SOUTH PROJECTION

ESCALATOR #11 (E)

STAIR #10

STAIR #9

PARKING AREA #2

EL. 279'-3"

CL. 284'-0"
FLOOR LIGHT TO CLEAR UNDER

RAMP "G"
DN TO EL. 279'-3"

SUPPLY SHAFT

RAMP ABOVE

OSB 586 EXHAUST PLENUM

TRUCK EXHAUST PLENUM

ESCALATOR #1

TOWER "B"
EL. 284
FOR PIPING WITHIN TOWER
SEE DWG. P-B-7

STAIR K-4

STAIR K-5

STAIR K-6

STAIR K-7

STORAGE
EL. 284'-0"

RAMP "L"
4'-0" HIGH CURB RAMP

TENANT STORAGE
EL. 284'-0"

PARKING AREA
EL. 284'-0"

SHAFT #5

SHAFT #6

SHAFT #7

SHAFT #8

SHAFT #9

SHAFT #10

PAD A

NOTE: ALL CROSS HATCHED EXISTING PIPING TO BE DELETED.

NOTE: THIS DWG. SUPERSEDES DWG. P-K-12

BULLETINS NOT NUMBERED ARE IN PROGRESS

NO.	DATE	REVISIONS	BY
21	4-19-74	46-290	J.J.

NO.	DATE	REVISIONS	BY
27	9-22-75	54-*	S.G.

APPROVED
CHIEF, PLANNING DIVISION
DATE

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ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN-ZONE "K"
SUB-LEVEL 1-EL 279-3 284

DRAWN	J.E.	CHECKED	F.A.S.
SCALE	1/8" = 1'-0"	DATE	5-15-68
PROJECT NUMBER	W.T.C. 5.31.00	SHEET NO.	
DRAWING NUMBER	P-K-12-II		

UNITED STATES CUSTOMS BLDG AREA

TRUCK DOCK & LOADING AREA
EL 280'-0"

TOWER "A"
EL. 294
FOR PIPING WITHIN TOWER
SEE DWG. P-A-8

LOADING DOCK
EL. 294'-0"

UTILITY RACK
FOR PIPING OF UTILITY RACK SEE DWG P-K-15

STAIR J-1

STAIR J-2

STAIR J-3

STAIR J-4

STAIR J-5

ELEV. LOBBY

NORTH METER ROOM

KEY PLAN

NOTE
DRAIN AFTER PIPE ROOFS ARE RELEASED

TO SIAMESE UNDER ANOTHER CONTRACT

TEMPORARY 6" DRY STANDPIPE - PROVIDE (2) TWO 2½" HOSE VALVES 5'-0" MINIMUM ABOVE FLOOR. ELEV. 294'-0" EXTEND UP TO TEMPORARY SIAMESE. THE LOCATION TO BE DETERMINED.

4" F.S.P. DROP TO 2½" HOSE VALVE FOR FUTURE HOSE RACK (HOSE RACK TO BE FURNISHED & INSTALLED UNDER U.S. CUSTOMS BLDG. CONTRACT)

TOWER A

RAMP "J"

RAMP "M" UP TO EL. 304'-3

RAMP "N"

RAMP "H"

UNASSIGNED AREA No. 9

PARKING AREA

TOWER "B" EL. 294 FOR PIPING WITHIN TOWER SEE DWG. P-8-8

KEY PLAN

SOUTH METER ROOM SEE SPRINK. DWG. P-K-15 PARTY

FOR CONTINUATION SEE DWG. P-J

FOR CONT. SEE DWG. P-K-15

FOR CONT. SEE DWG. P-B-8

FOR CONT. SEE TOWER "B"

FOR PIPING IN UTILITY RACK SEE DWG. No. P-K-15

FOR PIPING IN UTILITY RACK SEE DWG. No. P-K-16

SEE NOTE "7"

SEE NOTE "8"

PLAN ELEV. 310'-0"
SCALE 1/4"=1'-0"

PLAN ELEV. 294'-0"
SCALE 1/4"=1'-0"

NOTE:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. P-B-1.
2. FOR CONT. OF PIPING AT UTILITY RACK SEE 1/4" SCALE PLAN OF UTILITY RACK, DWG P-K-15

6. THE 6" SPRINKLER MAIN INDICATED ON THIS PLAN WILL BE INSTALLED UNDER ANOTHER CONTRACT AND IS SHOWN SOLELY AS AN INDICATION FOR THE FIRE & SPRINKLER LOOP CONNECTIONS ONLY WITH THEIR SUNKEN CONNECTIONS. FOR FURTHER COORDINATION SEE SPRINKLER DWGS.

8. DRAINAGE PIPING TO BE SCHED. 40 GALVANIZED STEEL

9. FLASH STAIR DRAINS SHALL BE 20GA INSOLINC "EON-615 V" MAS. CLASS I BODY, WITH SEDIMENT POT, BIRD STRIDLES, AND CLAMPING COLLAR; BOTTOM OUTLET, WORM GEAR, MODIFIED WITH TYPE "V" EXTENSION AND "V" DR. TYPE "N" DOMES ADJUSTABLE TO WITH RESPECTIVE SERP. FLANGE GRATE. THIS CONTRACTOR SHALL PROVIDE STYROFOAM COLLAR, OR OTHER SMOKE BARRIER, AS REQUIRED. AT TIME OF INSTALLATION OF THE SYPHON, THIS CONTRACTOR SHALL REMOVE THE STYROFOAM COLLAR AND TAP THE "V" FOR THE 6" SPRINKLER MAIN. INSTALL TYPE "V" EXTENSION, AND A 3"x10" TYPE "P" NICKEL BRONZE NIPPLE WITH 3" NICK HEAVY DUTY GRATE, SECURED WITH SPANNER TYPE TAMPER PROOF SCREWS.

20	C-18-72	36-207	RB	10	7-22-70	66-39	5-46				
19	2-18-71	54-291	GK	9	5-15-70	54-21	4-L				
18	1-18-71	54-196	GK	8	3-10-70	54-5.0	3-JG				
17	1-18-71	54-145	GK	7	12-29-69	29-35	2-T				
16	12-7-70	36-179	TT	6	10-10-69	36-25	1-L				
15	10-16-70	36-173	TT	5	10-10-69	36-18	1-C				
14	8-17-70	54-181	LA	4		54-10	1-C				
13	7-31-70	36-165	GK	3	7-8-69	36-16	1				
12	6-17-70	66-188	RB	2	6-27-69	54-1.0	1-C				
11	10-5-70	54-114	SJG	1	7-14-69		C-				
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY				
		REVISIONS				REVISIONS					

APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

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MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

SUB-GRADE PLAN-ZONE "K"
SUB-LEVEL EL 294

DRAWN	P.V.T.	TRACED	F.A.S.
SCALE	1/16" = 1'-0"	DATE	5-15-68
FILE NO.		DWG. NO.	
APPROVED			P-K-14

MATCHLINE N 4755
FOR CONTINUATION SEE DWG. P-1-

TOWER 'A'

RAMP 'B'

RAMP 'A'

RAMP 'N'

RAMP 'L'

TRUCK CIRCULATION AREA

PARKING AREA
EL 290'-0"

TOWER 'B'
EL. 294
FOR PIPING WITHIN TOWER SEE DWG. P-8-8

UNASSIGNED AREA 2

UNASSIGNED AREA 3

LOADING PLATFORM 'S'

PARKING AREA

PART PLAN 310' LEVEL

PART PLAN 310' LEVEL

PART PLAN 294' LEVEL

ANTI-FREEZE WALL HYDRANT SHALL BE SIAMESE MODEL No. E-1310

NORTH

SOUTH METER ROOM SEE PIPES PROJECTING

NOTE: THIS DWG. SUPERSEDES DWG. P-K-14

THE WORLD TRADE CENTER

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JOSEPH R. LORING & ASSOCIATES
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THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

REVISIONS

NO.	DATE	BUL. NO.	BY
	5-19-66	616	
	4-14-66	590	J.T.

APPROVED

CHIEF, PLANNING DIVISION
DATE

TITLE: SUBGRADE PLAN-ZONE 'A'
SUBLEVEL-EL. 294

DRAWN	PJT
DETAILS	
TRACED	
CHECKED	
APPROVED	
SCALE	1/16" = 1'-0"
DATE	5-19-66
BUL. NO.	616
CONTRACT NO.	NTC 554-660

P-K-15

RAMP J

RAMP G

CONTROL BOOTH

METER ROOM DETAIL DWG P-X-16

NORTH SPLICE CHAMBER TOP OF SLAB EL. 302'-9"

UNDER SPLICE CHAMBER

CENTER SPLICE CHAMBER TOP OF SLAB EL. 300'-7"

EXPANSION LOOP

ACCESS DOOR FOR PIER

ANCHOR

CONCRETE PIER

24"x20" REDUCER

24" x 16" REDUCER

16" x 16" REDUCER

SECTIONALIZING VALVE

8" C.W.

6" C.W.

4" C.W.

6" DRAIN VALVE PIPED TO P.D.

SEE TYPICAL SLV DETAIL P-X-17

SLOPE (BY OTHERS) LIMIT OF CONTRACT

FOR CONT(FY - HER)

HANGERS

EXPANSION LOOP

TOWER B TOP OF SLAB EL. 294'-0"

CORRIDOR

TENANT STORAGE TOP OF SLAB EL. 294'-0"

STEAM VALVE ROOM EL. 294'-0"

FULL CHAMBER

SEE M.H.A.C DWG'S

END OF INTERMEDIATE SLAB

LOADING PLATFORM EL. 294'-0"

METER ROOM

SOUTH SPLICE CHAMBER TOP OF SLAB EL. 294'-0"

10'-0 SEWER EL. 300'-5 INV EL. 295.5

6" C.W. INV EL. 301.8 EL. 301.8 EL. 306.0

10" C.W. INV EL. 301.8 EL. 306.0

SEE TYPICAL SLV DETAIL DWG P-X-17

FOR CONT SEE UTILITY DWG (BY OTHERS)

FOR CONT SEE UTILITY DWG (BY OTHERS)

NOTES

1. ALL DIMENSIONS SHOWN TO SLURRY WALL ARE BASED ON NOMINAL DESIGN LOCATION OF WALL. ACTUAL FIELD POSITION OF SLURRY WALL MAY VARY WHICH WILL AFFECT CLEAR DIMENSION OF UTILITY RACK.
2. FOR DETAILS OF SPLICE CHAMBERS SEE DWG. E-20-SK 8411, CON EDISON CO.
3. FOR DIMENSIONS AND LOCATION OF PANELS SEE DWG P-X-5
4. FOR GENERAL NOTES & SYMBOLS SEE DWG P-X-27
5. FOR CONTN OF ALL LINES BEYOND UTILITY RACK, WALL, SEE DWG'S SP-J-18, SP-K-20, P-J-13, P-K 14
6. FOR CON ED CONDUIT SEE ELECTRICAL CONDUIT DWG'S
7. FOR C.W. SADDLES & INSULATION REFER TO SPECS FOR USE ON SUPPORTS
8. SUPPORTS TO BE LOCATED A MINIMUM OF 3'-0" ON CENTERS OR A MINIMUM OF (2) TWO PER 10 INCH ON PIPE
9. FOR DETAILS & SECTIONS OF PIPING THIS DWG SEE DWGS P-X-16, P-X-17

1/8" = 1'-0" scale 0 5 10 15 20 feet

REVISIONS

NO.	DATE	DES.	DRN.	CHK.
1	1-10-68	S.G.	E.A.S.	
2	3-19-68	S.G.	E.A.S.	

APPROVED

CHIEF PLANNING DIVISION

DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS

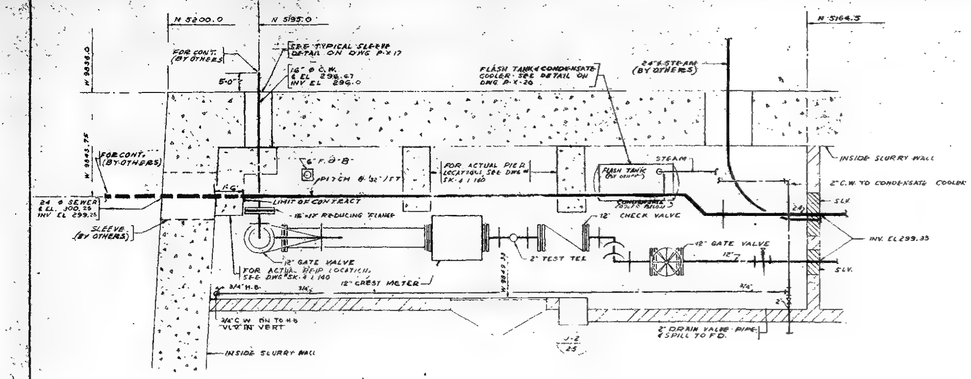
JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS

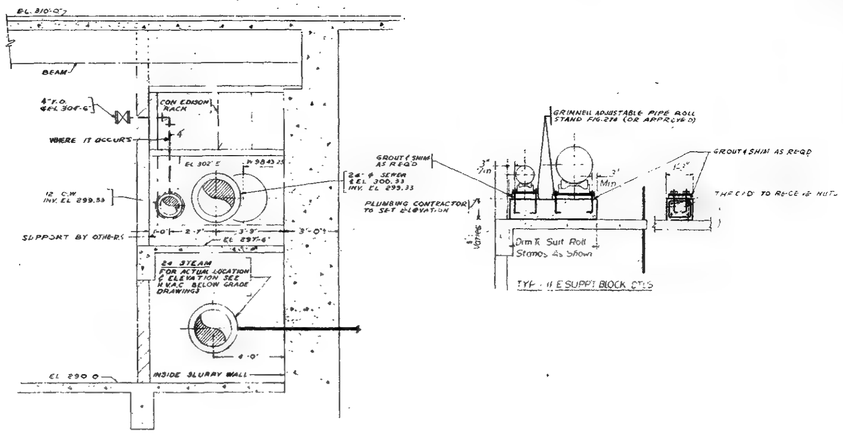
THE PORT OF NEW YORK AUTHORITY — PAVING, UTILITIES, FOUNDATIONS

TITLE: UTILITY RACK EL. 290'-294'

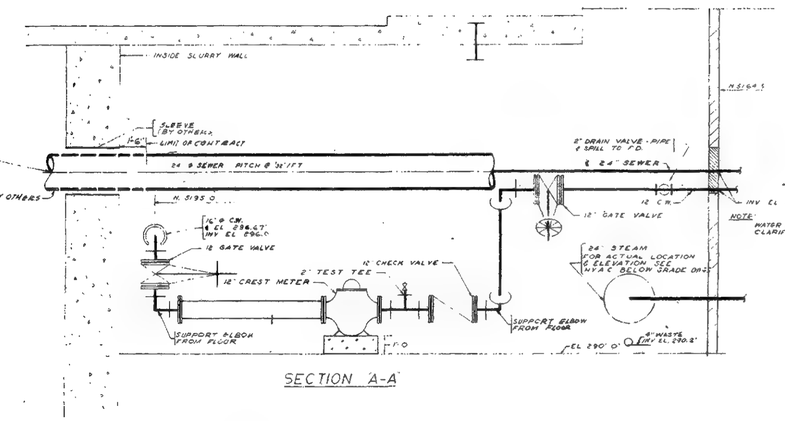
DRAWN	W.F.M.	CHECKED	E.A.S.
SCALE	1/8"=1'-0"	DATE	5-15-68
CONTRACT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-15		



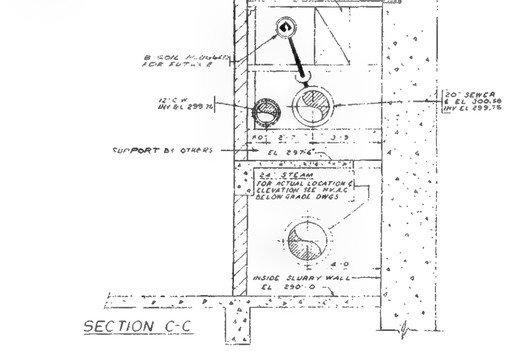
NORTH METER ROOM



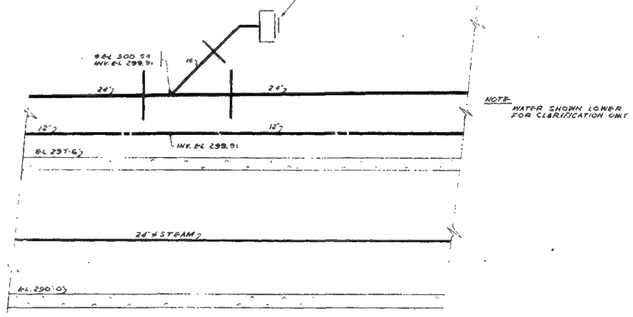
SECTION B-B



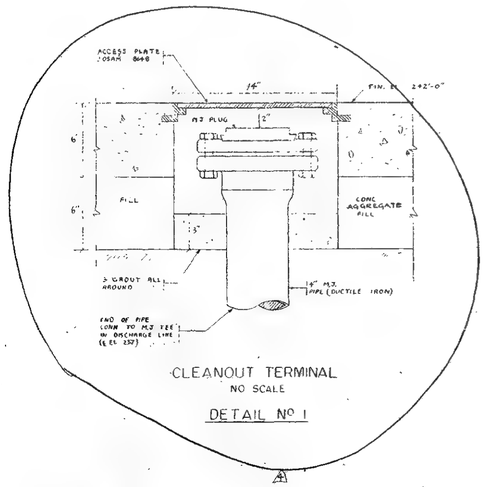
SECTION A-A



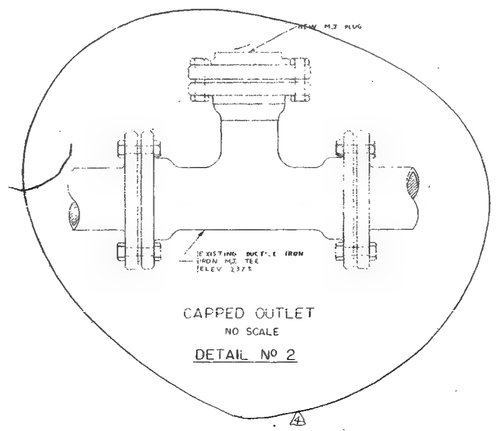
SECTION C-C



SECTION D-D



CLEANOUT TERMINAL
NO SCALE
DETAIL NO 1



CAPPED OUTLET
NO SCALE
DETAIL NO 2

NOTE
1. FOR GENERAL NOTES & SYMBOLS SEE DWG # P-X-1
2. CONCRETE SUPPORTS PIERS, TO BE BY OTHERS
3. 1" INSULATION ON C W
4. FOR LOCATION OF SECTIONS SEE P-X-1C

NO.	DATE	BUL. NO.	BY
4	10-13-72		RB
3	3-20-69	56-6	J.C.
2	9-17-68	55-2	A.F.
1	7-10-68		E.M.

REVISIONS

APPROVED

CHIEF, BUREAU OF DESIGN

DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

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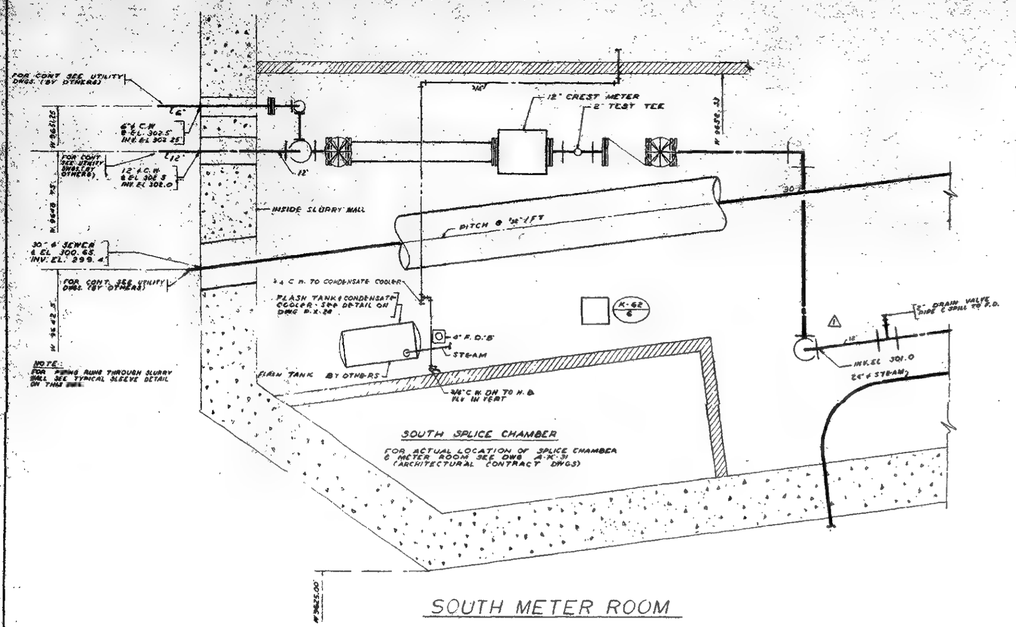
ELECTRICAL ENGINEERS

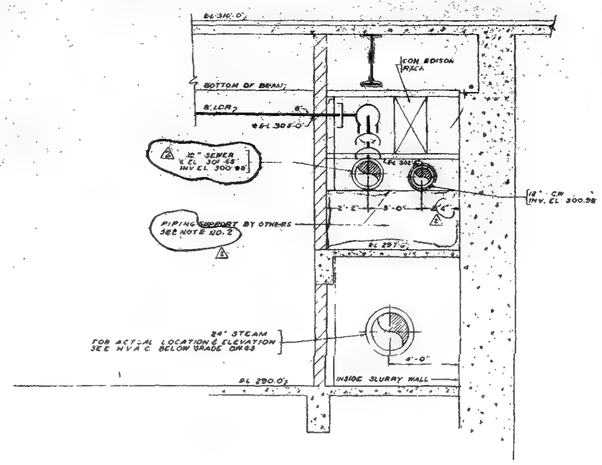
THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET No.1

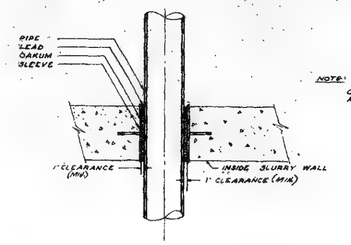
DRAWN	W. F.M	CHECKED	FAS
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-16		



SOUTH METER ROOM

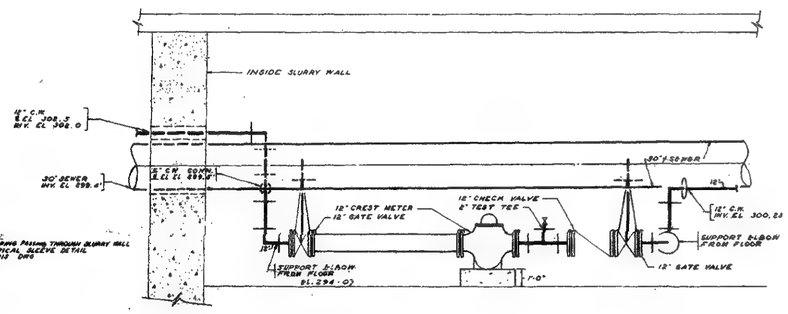


SECTION F-F

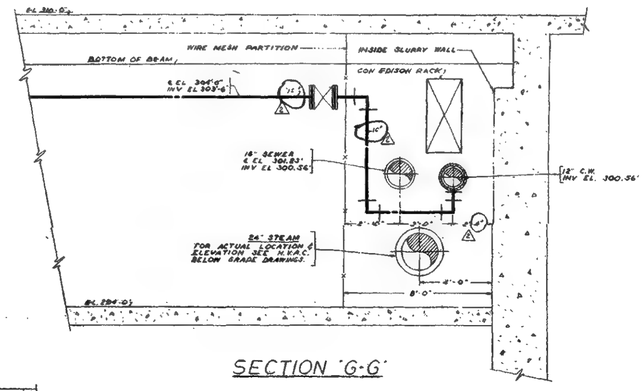


TYPICAL SLEEVE DETAIL

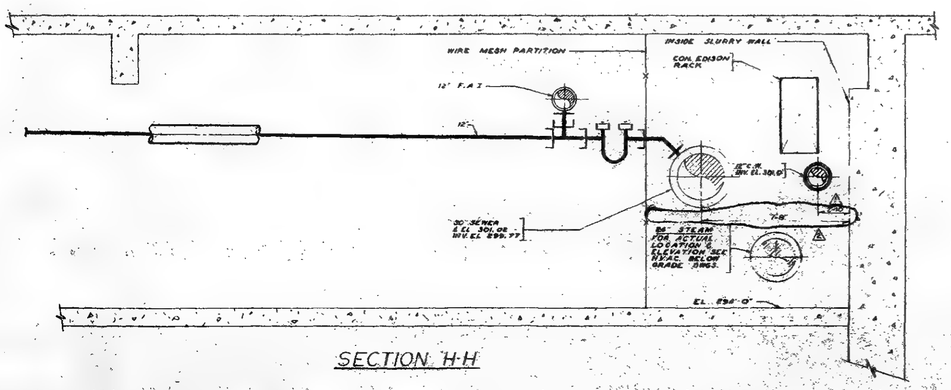
NO SCALE



SECTION J-J



SECTION G-G



SECTION H-H

NOTES:

1. FOR GENERAL NOTES & SYMBOLS SEE DWG P-X-27
2. FOR SUPPORTS OF SEWER & WATER LINES SEE STRUCTURAL DRAWINGS
3. 1" INSULATION ON C.W.
4. FOR LOCATION OF SECTIONS SEE P-X-16.

NO.	DATE	REVISIONS	BY
2	7-7-69	GG-6	E.M.
1	10-6-68		J.E.

NO.	DATE	REVISIONS	BY

APPROVED

CHIEF, PLANNING DIVISION

DATE

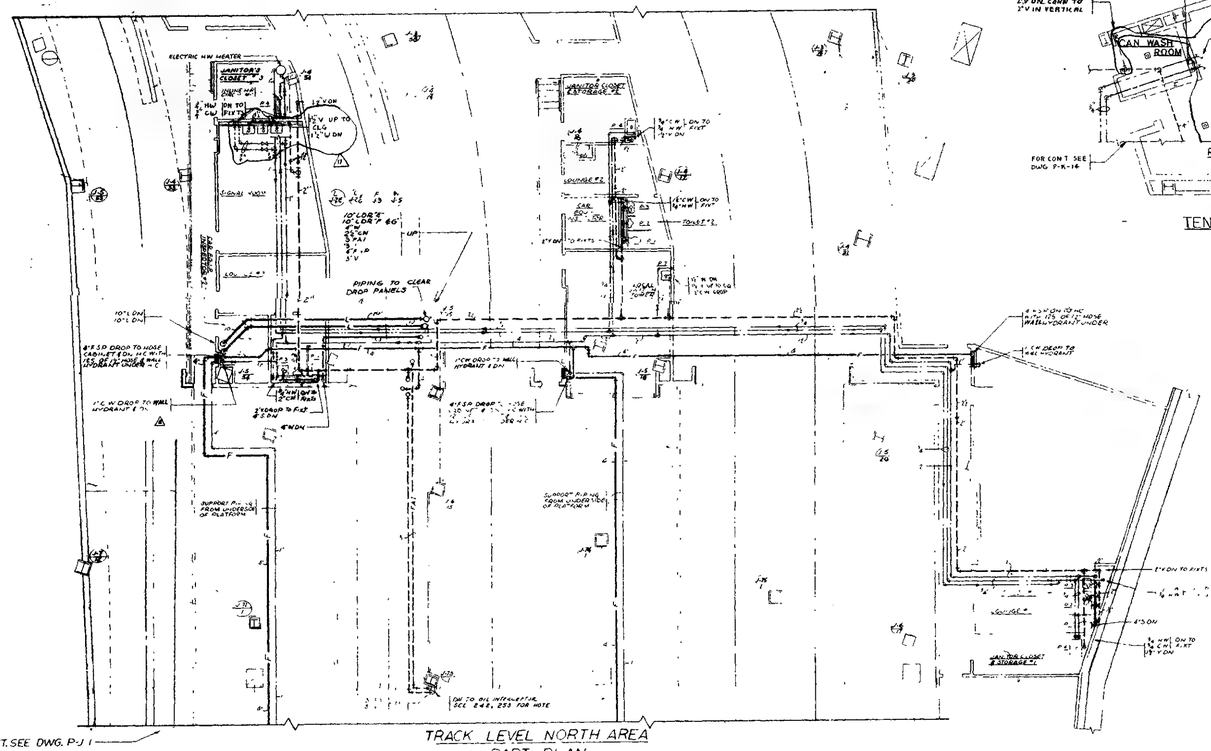
THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

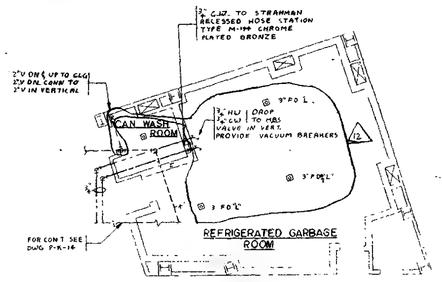
MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT
EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS
JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS
THE PORT OF NEW YORK AUTHORITY — PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET No. 2

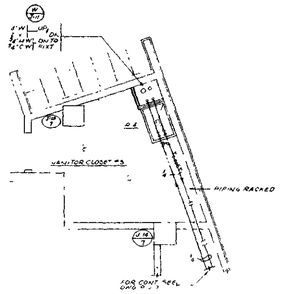
DRAWN	W.F.M.	CHECKED	F.A.S.
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-17		



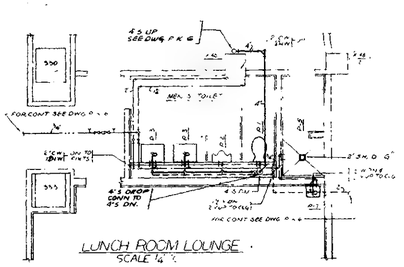
TRACK LEVEL NORTH AREA
PART PLAN



TENANT REFUSE AREA
SCALE 8"=1'-0"

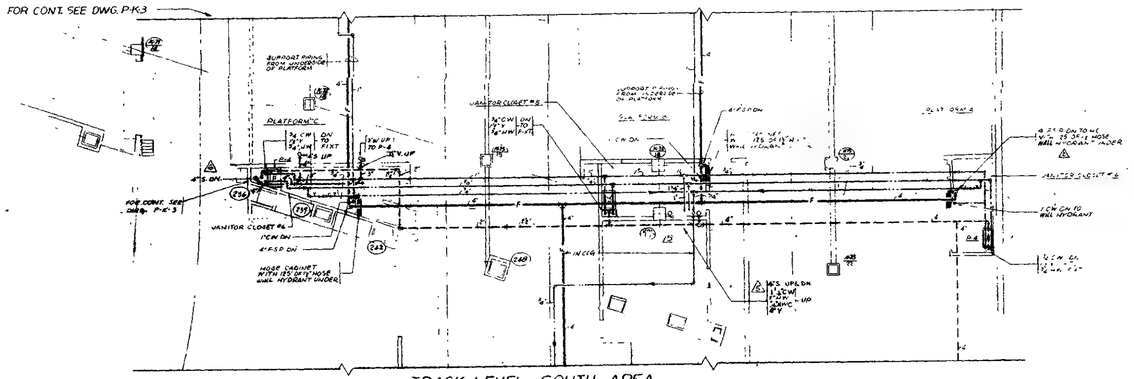


MEZZANNIE LEVEL
SCALE 1/4"=1'0"



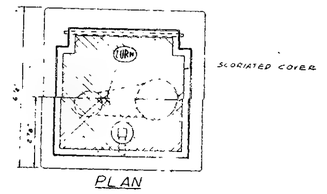
LUNCH ROOM LOUNGE
SCALE 1/4"=1'-0"

TERMINAL FLOOR PLAN
SOUTH AREA EL 250.0'

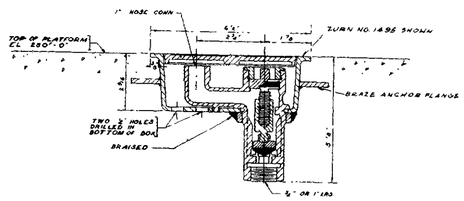


TRACK LEVEL SOUTH AREA
PART PLAN

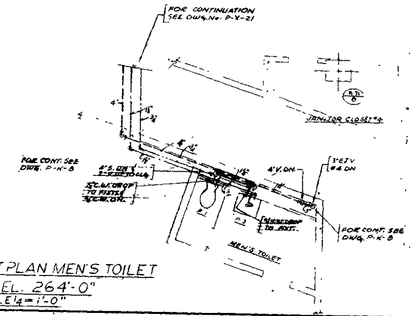
NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG No. P-X-27



PLAN



SECTION
DETAIL OF BOX HYDRANT
NO SCALE



PART PLAN MEN'S TOILET
AT EL. 264'-0"
SCALE 1/4"=1'-0"

NO.	DATE	BUL. NO	BY
12	5-18-72	SG 208	RB
11	5-18-72	SG 191	RB
10	10-6-71	182	MA
9	9-27-71	SG 118	SAS
8	7-27-71	SG 120	G.P.
7	10-6-71	SG 173	E.I.
6	3-30-70	SG 33	E.I.
5	12-19-69	SG 16	S.K.
4	6-3-69	SG 15	J.C.
3	1-20-69	SG 6	K.W.
2	9-17-68	SK 2	J.E.
1	7-15-68		E.M.

REVISIONS

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, NELLE & JACKSON
STRUCTURAL ENGINEERS

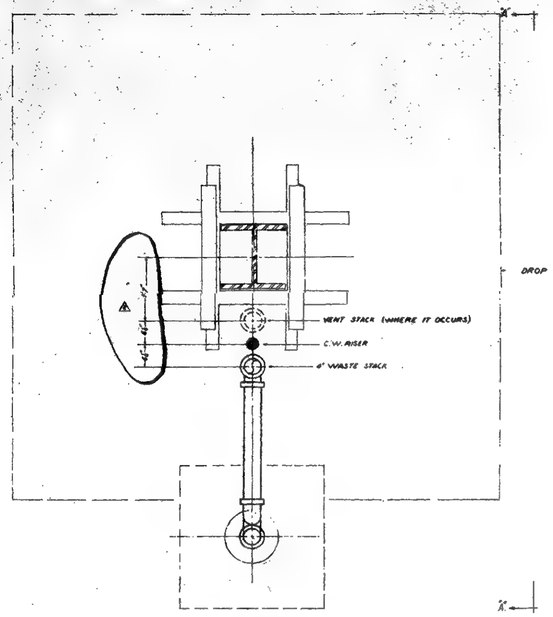
JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

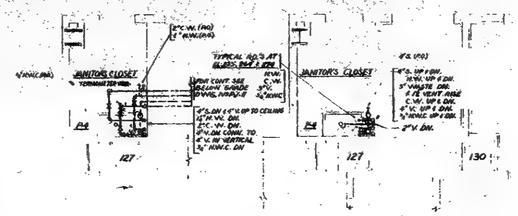
THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET No.3

DRAWN	R.A	CHECKED	F.A.S.
SCALE	AS NOTED	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-18		

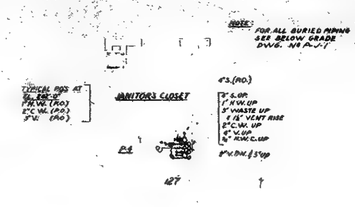


PLAN
DETAIL TYPICAL COLUMNS
4" WASTE STACK - C.W. RISER & VENT STACK
&
LOCATION OF FLOOR DRAIN

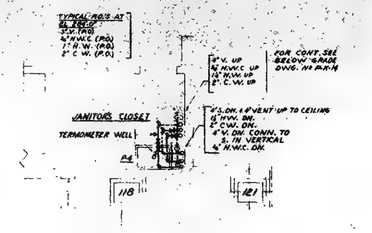


PART PLAN OF MOP RECEPTOR
ZONE 'J' EL. 284'-0"

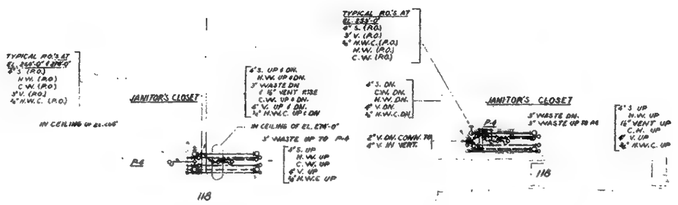
PART PLAN OF MOP RECEPTOR
ZONE 'J' EL. 253'-0", 264'-0" & 274'-0"



PART PLAN OF MOP RECEPTOR
ZONE 'J' EL. 242'-0"

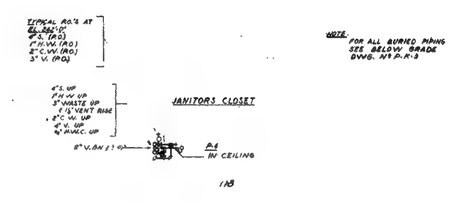


PART PLAN OF MOP RECEPTOR
ZONE 'K' EL. 264'-0"

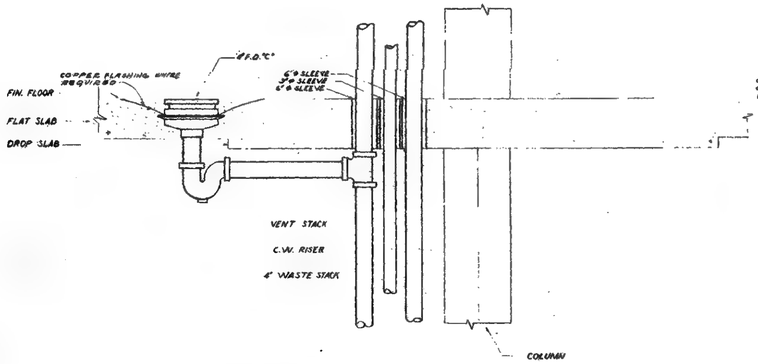


PART PLAN OF MOP RECEPTOR
ZONE 'K' EL. 264'-0" & 274'-0"

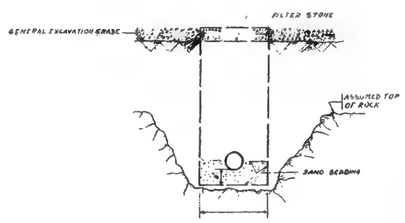
PART PLAN OF MOP RECEPTOR
ZONE 'K' EL. 253'-0"



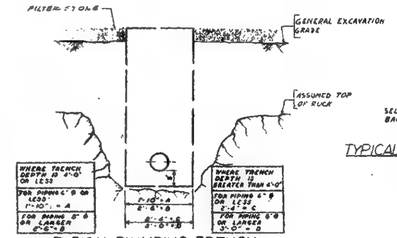
PART PLAN OF MOP RECEPTOR
ZONE 'K' EL. 242'-0"



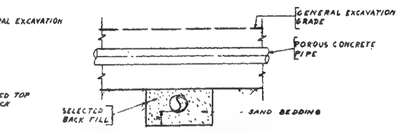
SECTION 'A'-'A'



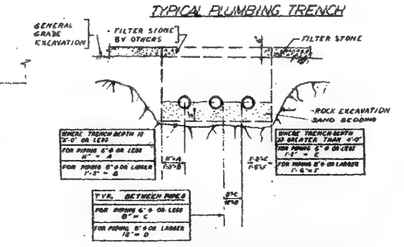
TYPICAL PLUMBING TRENCH



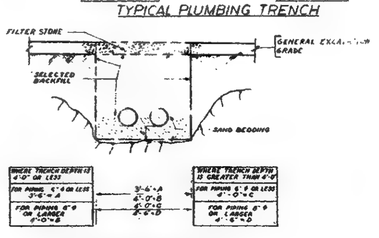
TYPICAL PLUMBING TRENCH



TYPICAL INTERSECTION OF DRAINAGE AND PLUMBING TRENCHES



TYPICAL PLUMBING TRENCH
FOR 3 OR MORE PIPES



TYPICAL PLUMBING TRENCH
FOR TWO PIPES

NOTE:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG NO P-X-27
2. FOR TRENCHING DETAILS SEE DWGS P-X-30, P-X-31, & P-X-32

NO.	DATE	REVISIONS	BY
2	1-20-69	56-6	J.C.
1	9-17-68	50-2	SE

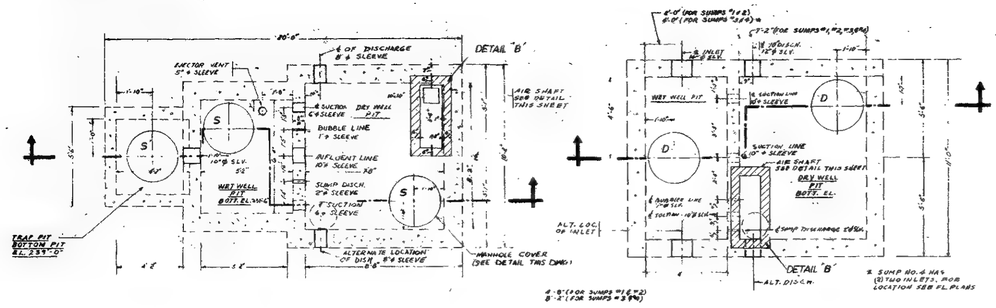
APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES MINORU YAMASAKI, ARCHITECT	EMERY ROTH & SONS RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, HELLE & JACKSON STRUCTURAL ENGINEERS	JAROS, BAUM & BOLLES MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES ELECTRICAL ENGINEERS	THE PORT OF NEW YORK AUTHORITY PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET No. 4

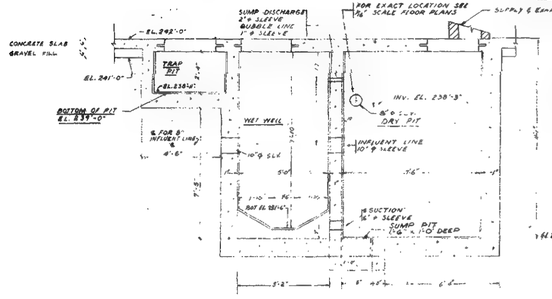
DRAWN	J.E.	CHECKED	F.A.S.
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-19		



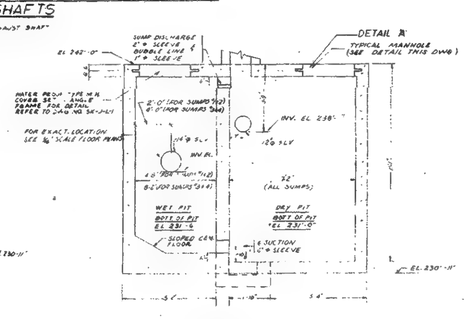
EJECTOR PIT

SUMP PIT

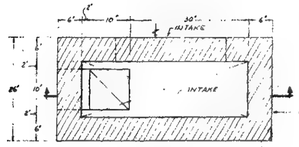
DETAIL OF SLEEVE, MANHOLES & EXHAUST SHAFTS



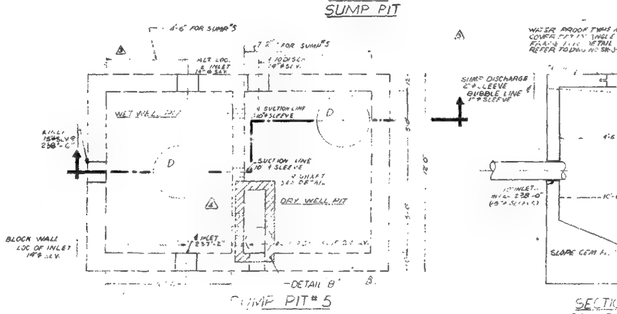
SECTION
EJECTOR PIT



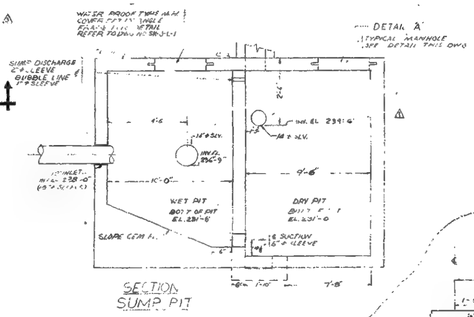
SECTION
SUMP PIT



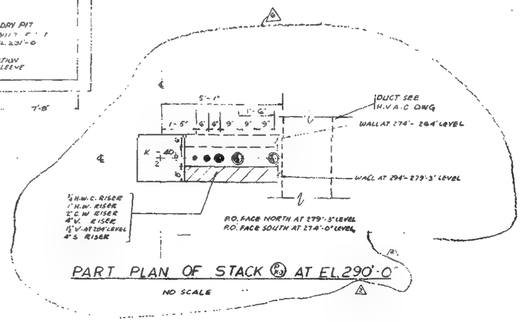
PLAN TYP. SUMP & EJECTOR PIT
AIR SHAFT ENCLOSURE



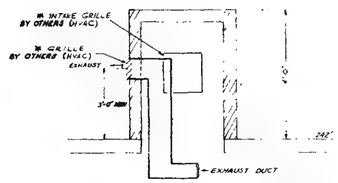
SUMP PIT # 5



SECTION
SUMP PIT

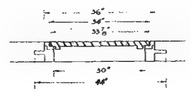


PART PLAN OF STACK (P3) AT EL 290'-0"
NO SCALE



NOTE:
1. 8 DUCTS AND GRILLE BY OTHERS (H.V.A.C) EXHAUST DUCT BY OTHERS (H.V.A.C) TO BE CONNECTED TO EXHAUST FAN. EXHAUST FAN BY PLUMBER.

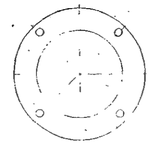
ELEVATION
DETAIL 'B'



ELEVATION OF M.H. FRAME & COVER (BY OTHERS)
(FLOCKHART FOUNDRY CO. TYPE 600 C.E. NO. 62056)

DETAIL 'A'

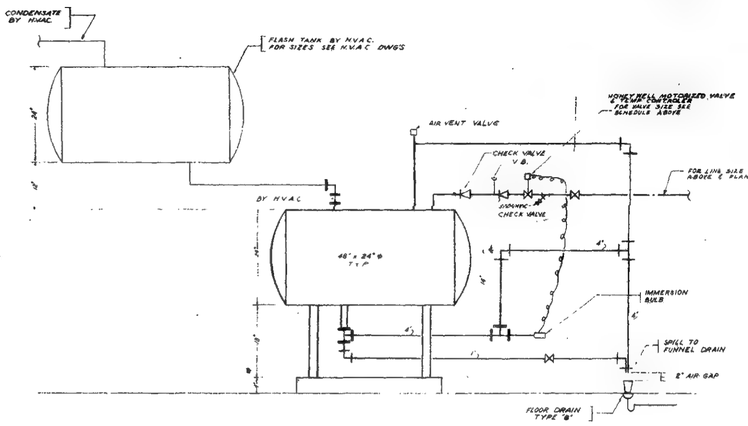
NOTE:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG. NO. P-X-27



PUMP SUPPORT MOUNTING
PLAN

SCHEDULE FOR CONDENSATE TANK WATER VALVE

CONDENSATE COOLER	VALVE SIZE	LINE SIZE (INCLUDING ALL OTHER VALVES		@ P.W. P.S.I.G.	PRESS. DROP
#1	1½"	2"		25	2 P.S.I.
#2	1"	1¼"	—	12	2 P.S.I.
#3	2"	3"	—	4	2 P.S.I.
#4	1"	1¼"	—	12	2 P.S.I.
#5	1½"	1½"		30	2 P.S.I.



CONDENSATE COOLER DETAIL
(FOR LOCATION & C.W. SIZES SEE FLOOR PLANS)

NO.	DATE	REVISIONS	BY
6	5-15-70	SG-51	JJ
5	12-19-69	SG-5	SJC
4	3-18-69	SG-10	BV
3	1-7-69	SG-6	WB
2	9-17-68	SG-2	JE
1	7-10-68		AT

NO.	DATE	REVISIONS	BY

APPROVED

CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

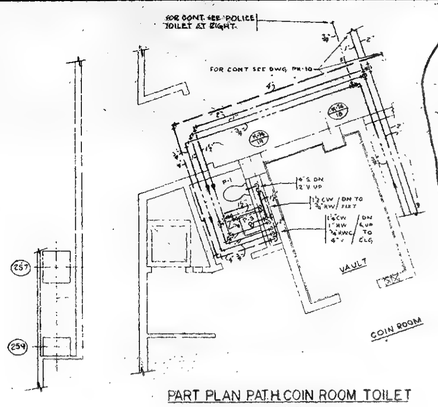
JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

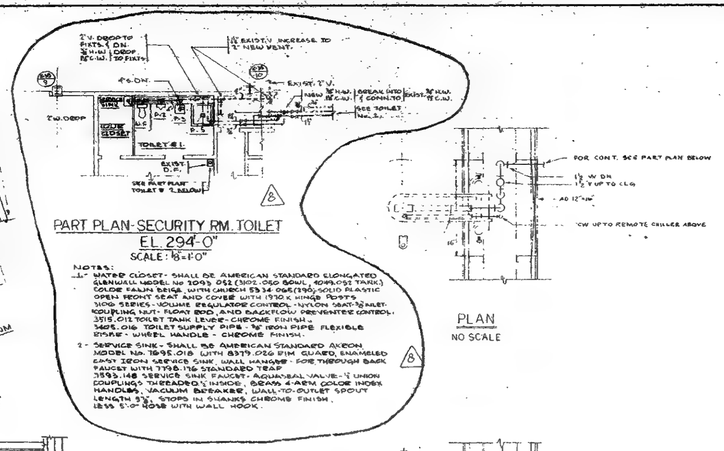
THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET NO 5

DRAWN	J.E.	CHECKED	F.A.S.
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-20		

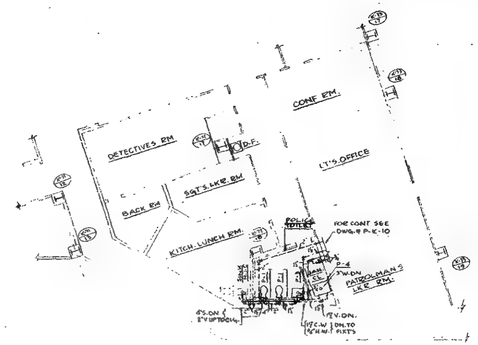


PART PLAN PATH COIN ROOM TOILET
EL. 264'
SCALE 1/4"=1'-0"

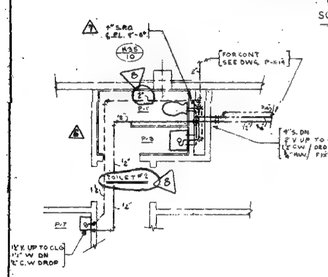


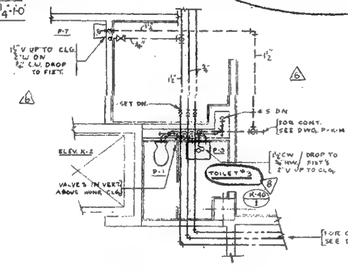
PART PLAN - SECURITY RM. TOILET
EL. 294'-0"
SCALE: 1/8"=1'-0"

PLAN
NO SCALE

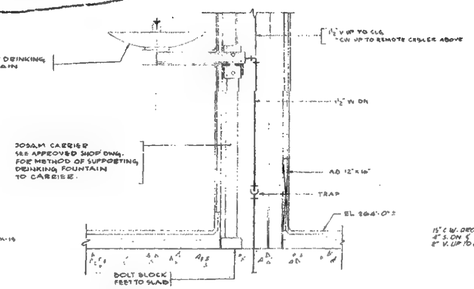


PART PLAN OF POLICE FACILITY TOILET
SCALE 1/8"=1'

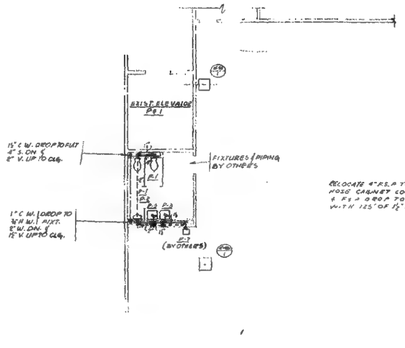




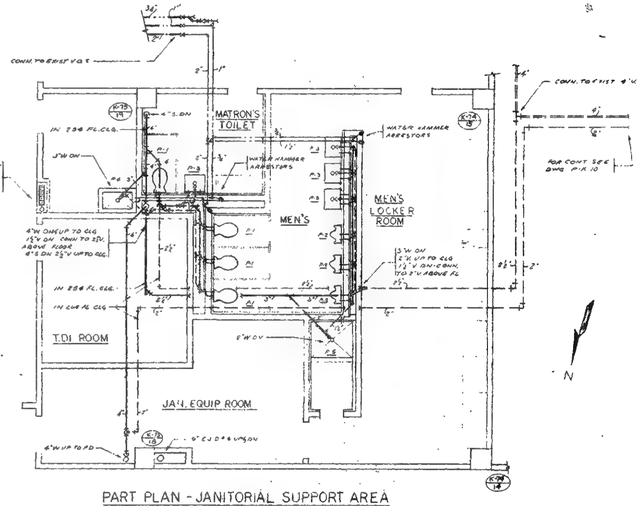
PART PLANS - SECURITY RM. TOILETS
EL. 294'
SCALE 1/4"=1'-0"



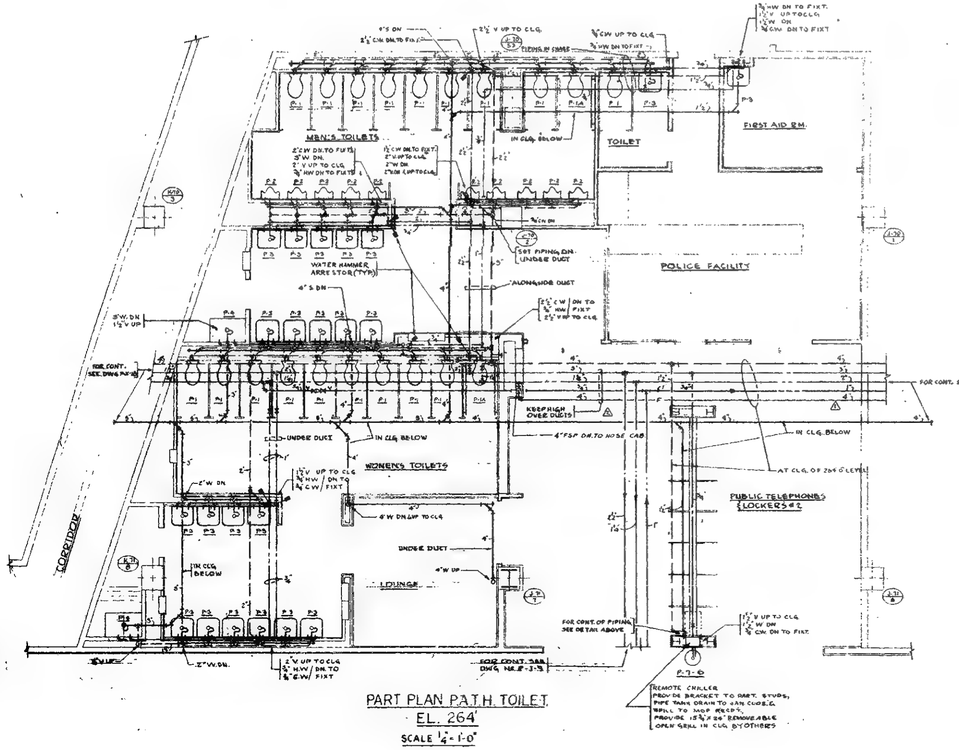
DRINKING FOUNTAIN ELEVATION (P-7-B)
NO SCALE



PART PLAN OF MENS TOILET
SUB GRADE LEVEL EL. 294'-0" (SCALE 1/8"=1'-0")

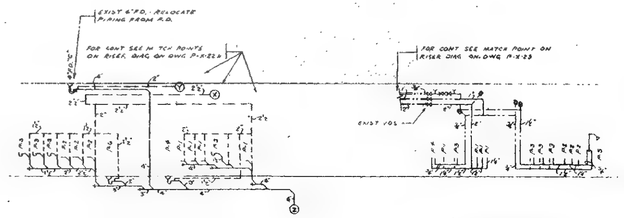


PART PLAN - JANITORIAL SUPPORT AREA
EL. 264'
SCALE 1/4"=1'-0"



PART PLAN P.A.T.H. TOILET
EL. 264'
SCALE 1/4"=1'-0"

NOTE:
1) SPECIFICATION FOR PATH DRINKING FOUNTAIN: DRINKING FOUNTAIN SHALL BE "SUDLER" MODEL NO. 2 STAINLESS STEEL 16" DIAMETER BRUSHED FINISHED WITH CONTOURED BASIN WITH DRAIN AND REMOVABLE CHECK PLATE GRID STRAINER WITH ACCESS TO DRAIN LINE. PUSH BOTTON OPERATED AUTOMATIC STREAM REGULATING VALVE. REMOVABLE ACCESS PANEL WITH LOUVERED GRILLE. STAINLESS STEEL BRUSHED FINISHED TO SERVICE COOLING PACK (AE). COOLING PACKAGE SHALL BE HORLEY TAYLOR MODEL NO. HEGA MODIFIED AND SHALL HAVE MINIMUM CAPACITY OF 10 G.P.H. OF 55° WATER WITH 80°F AMBIENT AIR TEMPERATURE OF 90° INLET WATER TEMPERATURE OF 80°. HERMETICALLY SEALED COMPRESSOR WITH STARTING CAPACITOR, LIFETIME LUBRICATION, BUILT IN OVERLOAD, PROTECTOR, 110 VOLTS, 60 CYCLE, A.C., SINGLE PHASE, ¼ HORSE POWER MOTOR, 3-WIRE GROUNDING TYPE LEADS, WALL BOX FOR ROUGHING OF ELECTRICAL AND PLUMBING CONNECTIONS. FINNED TUBE CONDENSER AIR-COOLED SILENT OPERATING FAN AND MOTOR. 5 YEAR GUARANTEE. UL AND CSA APPROVED.



PART SANITARY RISER

PART WATER RISER

NO.	DATE	BUL. NO.	BY
8	4-16-70	56-190	JJ
7	3-18-70	56-218	RB
6	3-18-70	56-207	RB
5	8-17-71	56-191	LM.
4	1-27-71	56-148	J.C.
3	10-6-71	56-173	JJ
2	3-13-70	56-51	J.J.
1	2-24-70	56-33	J.J.

REVISIONS

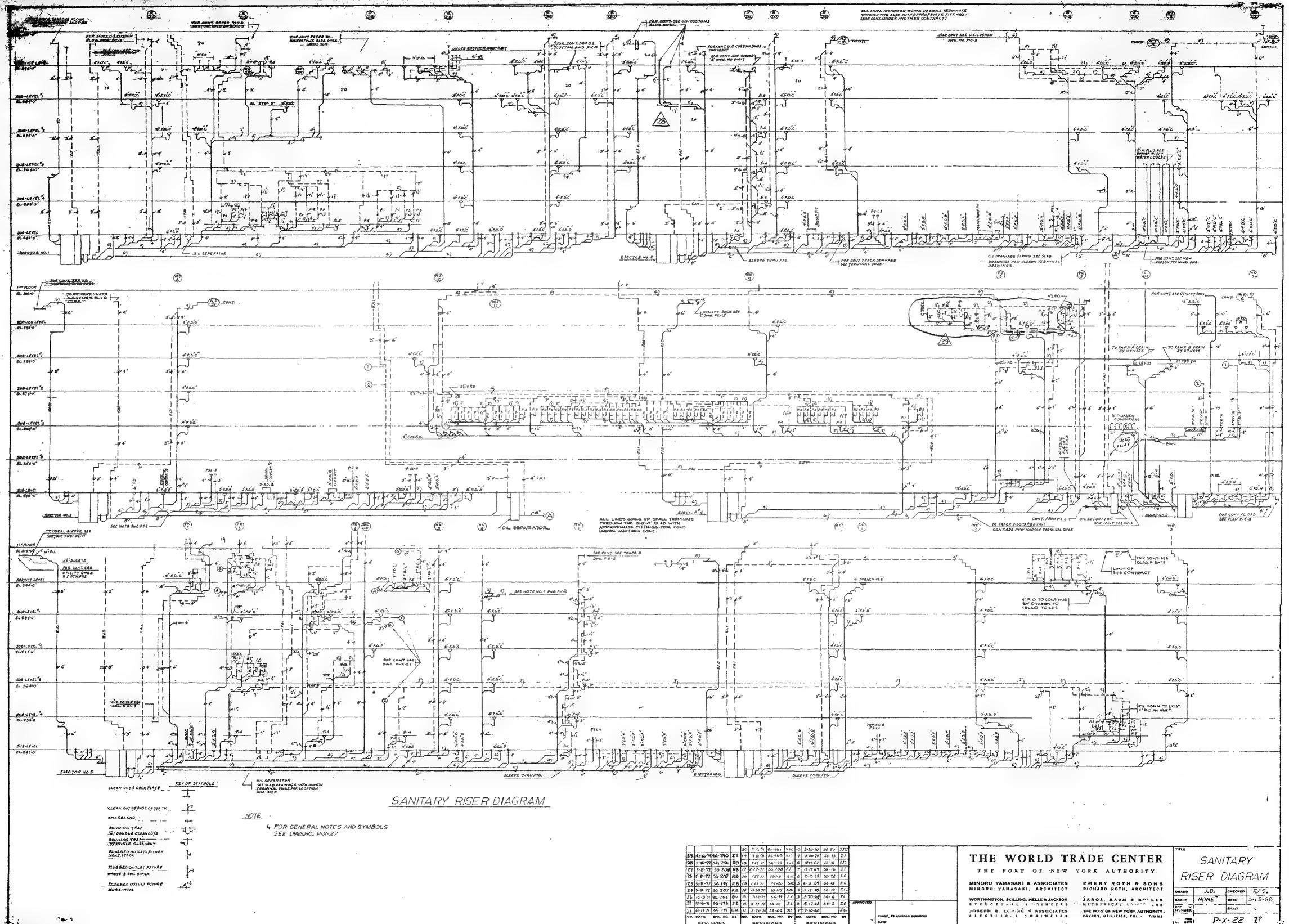
APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT
EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS
JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS
THE PORT OF NEW YORK AUTHORITY — PAVING, UTILITIES, FOUNDATIONS

TITLE: DETAIL SHEET NO 6

DRAWN	S.J.C.	CHECKED	F.A.S.
SCALE	AS NOTED	DATE	1-29-69
PROJECT NUMBER		SHEET	
DRAWING NUMBER	8-X-3		



SANITARY RISER DIAGRAM

REVISIONS											
NO.	DATE	BUL. NO.	BY	NO.	DATE	BUL. NO.	BY	NO.	DATE	BUL. NO.	BY
29	4-16-74	56-190	II	20	7-17-71	54-161	SJC	10	3-20-70	55-50	SJC
28	1-16-72	56-256	RB	19	7-17-71	54-165	SJC	9	3-20-70	56-33	JJ
27	5-8-72	56-208	RB	17	12-17-71	54-138	JJ	8	11-19-69	56-16	JJ
26	5-8-72	56-215	RB	16	12-17-71	54-118	SJC	6	10-10-69	55-52	JJC
25	5-8-72	56-191	RB	15	12-17-71	54-140	SJC	5	6-3-69	56-15	JJC
24	5-8-72	56-207	RB	14	10-20-70	56-119	SJC	4	3-17-69	56-10	JJC
23	12-3-71	56-165	EW	13	7-22-71	54-99	JJC	3	3-20-68	56-6	PJ
22	10-6-71	56-173	JJ	12	3-17-70	55-51	SJC	2	9-12-68	56-2	JJC
21	10-17-71	56-191	LM	11	3-20-70	56-66	JJC	1	7-10-68		JJC

APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

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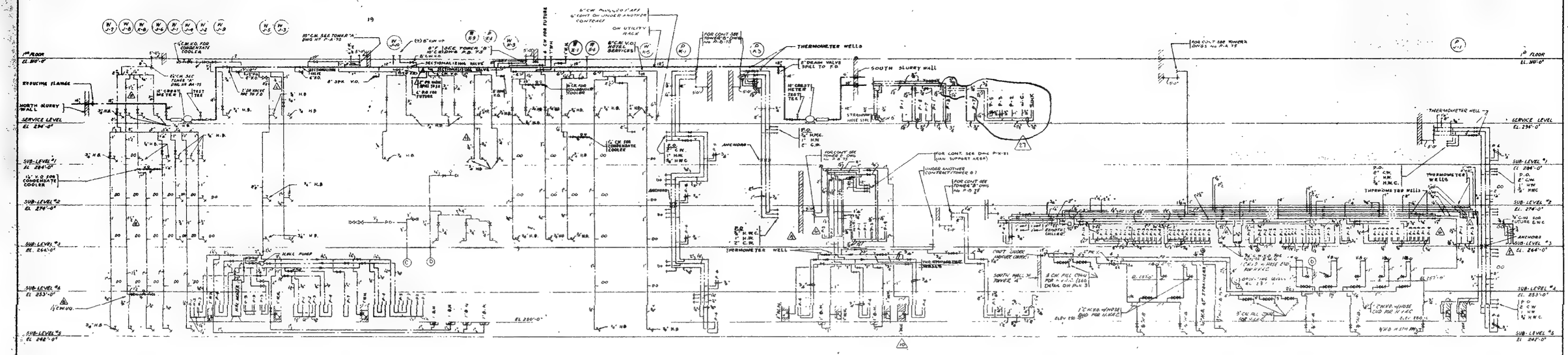
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

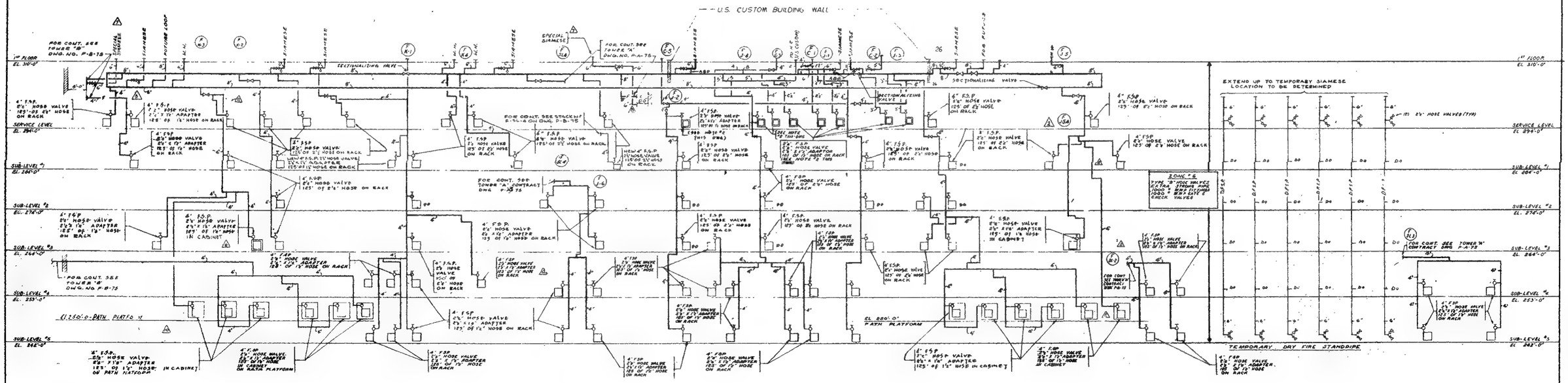
THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: SANITARY RISER DIAGRAM

DRAWN	J.D.	CHECKED	K.S.
SCALE	NONE	DATE	5-15-68
DWG. NUMBER	P-X-22		



WATER RISER DIAGRAM



FIRE STANDPIPE RISER DIAGRAM

NOTES:
1. FOR GENERAL NOTES & SYMBOLS SEE DWG P-X-27
2. PROVIDE HOSE VALVE FOR FUTURE HOSE RACK (WILL TO BE FURNISHED & INSTALLED UNDER ANOTHER CONTRACT)

NO	DATE	BULL. NO.	BY
21	12-3-71	SG-165	BV
22	5-8-72	SG-208	RB
23	5-9-72	SG-191	RB
24	5-8-72	SG-208	RB
25	6-19-72	SG-205	RB
26	3-22-72	SG-262	RB
27	8-16-72	SG-290	RB

REVISIONS

NO	DATE	BULL. NO.	BY
10	5-20-70	SG-47	SJC
9	5-20-70	SG-33	JJ
8	12-18-69	SG-5	SJC
7	12-19-69	SG-56	RT
6	12-19-69	SG-16	JC
5	6-3-69	SG-15	JC
4	5-19-69	SG-10	JC
3	1-20-69	SG-6	JC
2	9-17-68	SG-2	AF
1	7-10-68		JC

REVISIONS

NO	DATE	BULL. NO.	BY
20	8-16-71	SG-191	LM
19	7-19-71	SG-119	SJC
18	7-12-71	SG-101	SJC
17	7-13-71	SG-138	JJ
16	7-27-71	SG-120	SJC
15	7-27-71	SG-118	SJC
14	10-5-70	SG-114	SJC
13	7-17-70	SG-51	JJ
12	5-20-70	SG-60	SJC
11	5-22-70	SG-50	SJC

REVISIONS

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

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MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: WATER & F.S.P. RISER DIAGRAM

DRAWN		CHECKED	F.A.S.
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-23		

DRAINS

	DESIGNATION	REQUIRED	ZURN INDUSTRIES MODEL NO.	BODY: CAST IRON, ACID RESISTING ENAMEL	BODY: CAST IRON, EXTRA HEAVY, ACID RESISTING ENAMEL	BODY: GALVANIZED	BODY: ALL BRONZE	BODY: NICKEL BRONZE	BOTTOM OUTLET	45° OUTLET	SIDE OUTLET	OTHER OUTLET	CLAMPING DEV.	DECK CLAMP	BACK WATER VALVE	THREADED OUTLET	INSIDE CAULK	E.D. RECEIVER PLATE	CHROME PLATED	STRAINER: BRONZE, MESH SCREEN	STRAINER: CAST IRON	LACQUER COATED	GALVANIZED	SEDIMENT BUCKET	SECONDARY STRAINER	BRONZE	NICKEL-BRONZE	CHROME-PLATED	SATIN FINISH	TRACTOR GRATE	DURISIST COVER	FUNNEL TOP	FLAT TOP	HIGH DOME	LOW DOME	EXTENSION PIECE	VERTICAL ADJUST.	TOP SIZE	ANGLE TYPE	RAISED LIP	BACK WATER VALVE	REMARKS
A	DESIGNATION																																									
B	REQUIRED	●	●			●			●				●			●	●				●		●						●			●			●	●	12"					
C	ZURN INDUSTRIES MODEL NO.	●	ZG-521			●			●				●			●	●				●		●									●			●	●						
D		●	ZG-521 MOD.			●			●				●			●	●				●		●						●			●			●	●						
E		●	ZG-543			●			●				●			●	●				●		●		●							●			●	●						
F		●	ZG-1864			●			●				●			●	●													●		●			●							
G		●	ZG-3241			●			●				●			●	●													●		●			●							
H		●	ZN-415-B	●					●				●				●										●			●			●				●	5¾				
J		●	ZN-3261		●				●				●				●								●		●						●									
K		●	ZG-150M	●				●			●			●				●				●		●				●						●								
L		●	ZG-121	●				●			●			●				●				●		●										●								
M		●	ZG-690	●				●			●			●			●	●				●		●							●		●					18¼				
N																																										
O																																										
P																																										
Q																																										
R																																										
S																																										
T																																										

REMARKS: (A) MECH. EQUIP. RM'S. — GARAGE & TENANT STORAGE — SPRINKLER ALARM VALVE DISCH. — RAMP "H" TRENCH DR — M & E 2 INDIRECT WASTE RECEIVER — SHOWER DR — REFRIGERATION EQUIPMENT EL. 262'-0" — SIDE-WALK FINISHED LEVEL — UNDER SLAB DRAIN WEST OF TOWER "A" — GARAGE EXHAUST CHIMNEY ROOM (B) — (A) MECH. EQUIP. ROOM'S DRAIN AT EL 45'-0" ELEVATION — (B) GENERAL AREA OF LOCATION

⚠ MODIFIED WITH BOSS FOR 3" I.P.S. THREADED CONNECTION TO RECEIVE 3" I.P.S. CLOSE NIPPLE & 6¾" DIA FUNNEL 7¾" HIGH WITH RECESSED DOME STRAINER

⚠⚠ DURA-COATED CAST IRON FUNNEL TOP LESS BUCKET & LESS GRATE WITH RECESSED DOME STRAINER TOP MODIFIED TO RECEIVE 13'-0" THREE FOOT STANDPIPE 14" DIA CAULKED INTO TOP OF DRAIN (STANDPIPE BY PLUMBING CONTRACTOR)

⚠⚠⚠ PROVIDE WITH SILT GUARD

VALVE SCHEDULE

		VALVE SPECIFICATIONS: SIZE RANGE	FLANGED	SCREWED	SOLDER	SOCKET	HOSE END	WITH HOUSE PIPE	125# S.C.	125# O.S.&Y.	BRONZE	IRON	ALL IRON	CAST STEEL	125# WWP	175# WWP	200# WWP	250# WWP	300# WWP	400# WWP	600# WWP	800# WWP	1000# WWP	WHERE USED: BURIED SERVICE	PD 7.5 AT PUMP	PD 15 AT PUMP	PD AT TANKS	H.P. SUCTION	RISER DR.	NITROGEN	TANK CONN.	TANK VENT	FILL & VENT	RUN VALVE & TEE	RUN WHEEL & TEE	DR. LINE
	REQUIRED	STR. VAL.																																	
GATE VALVES	1573	1"-8"	●						●			●						●																		
	571	1"-8"	●						●			●						●																		
	570	½"-8"		●					●			●						●																		
	570A	½"-8"		●					●			●						●																		
	677A	¼"-8"	●							●		●							●																	
	630A	1½"-4"		●						●		●							●																	
	851A	2½"-12"	●							●		●							●																	
	869	2½"-8"	●							●		●							●																	
	936	2½"-12"	●							●		●							●																	
	177	2½"-8"	●							●		●							●																	
	869	2½"-12"	●							●		●							●																	
	2064	2½"-6"		●						●		●								●																
⚠	1208	2½"-12"	●							●		●								●																
	1273	3"-8"								●		●									●															
	1810DR	2½"-12"	●							●		●										●														
	1810DM	2½"-12"	●							●		●										●														
⚠ CHECK VALVES	1222	¾"-8"	●						●			●							●																	
	592	¼"-8"		●					●			●							●																	
	635	1"-8"	●						●			●							●																	
	196	¼"-8"		●					●			●							●																	
	199	¾"-8"	●						●			●							●																	
		¼"-		●					●			●							●																	
	339R	2"-8"	●						●			●							●																	
	1028C	2½"-6"	●							●		●								●																
	855	2½"-8"	●							●		●								●																
	1272	¼"-2"		●					●			●							●																	
GLOBE & ANGLE VALVES	1-20	¼"-2"		●					●			●							●																	
	106A	¼"-2"		●					●			●							●																	
	106BA	½"-2"		●					●			●							●																	
	113	¼"-1½"		●					●			●							●																	
	112	¼"-1½"		●					●			●							●																	
	1270	¼"-2"		●					●			●							●																	
	612	¼"-2½"		●					●			●							●																	
	613	¼"-12"	●						●			●							●																	
	546 P	¼"-2"		●					●			●							●																	
PLUG VALVES	1082+	¼"-6"		●					●			●							●																	
	142+	¼"-8"		●					●			●							●																	
	143+	¼"-6"		●					●			●							●																	

⚠ ROCKWELL-NORDSTROM VALVE CO. FIGURE

⚠⚠ WILLIAMS & HAGER Co. FIGURE No.

⚠⚠⚠ ELKHART Co. (REQ'D AT FIRE HOSE STATION)

⚠⚠⚠⚠ WALWORTH VALVE CO

WATER CLOSET CARRIER FILLING SCHEDULE

CODE: TO ZURN FIXTURE SUPPORTS – LETTERS AND NUMBERS

PREFIX LETTERS: Z – ZURN, E – EXTENDED FITTING WITH CUT OFF SERATIONS, Q – CLOSET CONNECTION, ADJUSTABLE FROM FINISHED WALL, U – "UNIVENT", VENT ON RUN ON SINGLE FITTINGS AND SINGLE VENT ON RUN ON DOUBLE FITTINGS AND T – 1½" OR 2" THREADED SANITARY AUX INLET.

SERIES NUMBERS: 1205/1204 – "MONOLITHIC" OR SHALLOW ROUGH SYSTEM, HORIZONTAL OR VERTICAL, SINGLE OR DOUBLE AND 1205/1206 DEEP ROUGH SYSTEM, HORIZONTAL OR VERTICAL, SINGLE OR DOUBLE

SUFFIX NUMBERS: – 1, ONE HUB INLET AND – 2, TWO HUB INLETS.

SUFFIX LETTERS: S – SYPHON - JET SYSTEM, B – BLOW OUT SYSTEM, H – HUB & SPIGOT FITTINGS, T – THREADED FITTINGS, R – RIGHT HAND HORIZONTAL FITTING OR RIGHT HAND HUB INLET – FITTING, L – LEFT HAND HORIZONTAL FITTING OR LEFT HAND HUB INLET FITTING, AND D – DOUBLE HORIZONTAL OR VERTICAL FITTING

NOTE: "P" DIMENSION – FACE PLATE TO FIN WALL: PROVIDE NIPPLE AND ADJUSTABLE NOSE PIECE

ZURN INDUSTRIES, INC. FIGURE NUMBER	FRONT ELEVATION	SIZE FITTING	SIZE OF HUB INLET OR INLETS	SIZE OF THREADED INLET	HUB & SPIGOT FITTING	THREADED FITTING	REGULAR LENGTH FITTING	EXTENDED FITTING	ADJUSTABLE FITTING	SEPERABLE FITTING (NON ADJ.)	OFFSET FITTING	FOR 12" RIM HEIGHT	FOR 14" RIM HEIGHT	SINGLE HORIZONTAL	DOUBLE HORIZONTAL	SINGLE VERTICAL	DOUBLE VERTICAL	RIGHT HAND FITTING	LEFT HAND FITTING	RIGHT HAND HUB INLET	LEFT HAND HUB INLET	TWO HUB INLETS	RIGHT HAND THREADED INLET	LEFT HAND THREADED INLET	SHALLOW ROUGH FTG.	DEEP ROUGH FTG.	FOOT NUMBER	BLOCK BASE BOLTED TO SLAB	CASTLEYER FOOT	LEAD GASKET & FITTING	LEAD GASKET	"MODEAL" CLOSET GASKET	"TRIMSEAL" FINISHING FR. (ALUM.)	2" VENT HUB CONN.	1½" SIH. "P" DIMEN.
ZQU – 1203 SHR OR L	LEFT HAND SHOWN	4"			●		●		●		●			●				●	●						●					●		●				
ZQU – 1205 SHR OR L	LEFT HAND SHOWN	4"			●		●		●		●			●				●	●						●		#2			●		●				
ZEQU – 1203 SHR OR L	LEFT HAND SHOWN	4"			●			●	●		●			●				●	●						●					●		●				
ZEQU – 1205 SHR OR L	LEFT HAND SHOWN	4"			●			●	●		●			●				●	●						●		#2			●		●				
ZEQU – 1203 SHD		4"			●			●	●		●			●		●													●		●				
ZEQU – 1205 SHD		4"			●			●	●		●			●		●													●	#4	●		●				
ZQU – 1206-1 STR OR L	RIGHT HAND SHOWN	6" & 5"	4"			●	●		●		●				●				●	●						●				●		●				
ZQUT – 1206-1 STR OR L	RIGHT HAND SHOWN	4" & 5"	4"	2"		●	●		●		●				●				●	●						●	●	●		●		●				
ZQU – 1206-2 ST.		8" & 5"	6"			●	●		●		●				●				●							●				●		●				
ZQU – 1206-2 STD		4"	4"			●	●		●		●				●				●							●				●		●				
ZQU – 1206-1 STR OR L	LEFT HAND SHOWN	4"	4"			●	●		●		●				●				●	●						●	#4			●		●				
ZQUT – 1206-1 STR OR L	LEFT HAND SHOWN	4"	4"	2"		●	●		●		●				●				●	●						●	●	●		●		●				
ZQU – 1206-1 STD		4"	4"			●	●		●		●				●				●							●	#4			●		●				
ZQUT – 1206-1 STD		4"	4"	2"		●	●		●		●				●				●							●	#4			●		●				

NOTES:
1. NOS. 1203 & 1204 SERIES FOR NORMAL ROUGH CLOSETS & 1205, 1206 SERIES FOR PARAPLEGIC CLOSETS (P-1A).
2. WHERE VERTICAL CARRIERS ARE REQUIRED CONTRACTOR HAS THE OPTION TO USE 1204 OR 1206 SHD

URINALS (P-2)
SUPPORT TO BE ZURN Z-1122 CHAIR CARRIER WITH WEDGE LOCKING BLOCK TYPE FOOT SUPPORTS SECURELY BOLTED TO SLAB UPPER SUPPORT PLATE AND LOWER BEARING PLATE, STEEL PIPE UPRIGHTS ADJUSTABLE SLEEVES AND ADJUSTABLE ALIGNMENT TRUSS

LAVATORIES (P-3)
SUPPORT TO BE ZURN ZU-1231 OR ZU 1233 CONCEALED ARM CHAIR CARRIER, SINGLE OR DOUBLE AS REQUIRED WITH WEDGE LOCKING BLOCK TYPE FOOT SUPPORTS SECURELY BOLTED TO SLAB STEEL PIPE UPRIGHTS AND ADJUSTABLE ALIGNMENT TRUSS ARMS SHALL BE PROVIDED WITH LEVELING SCREWS AND LOCKING DEVICE AND SHALL BE DESIGNED TO RECEIVE CHROME PLATED CAST BRASS TAPERSEATED ESCUTCHEONS.

SERVICE SINK (P-6)
SUPPORT ON ZA-1229 CHAIR CARRIER WITH HANGER PLATES, VITREOUS ENAMEL BRACKETS & BLOCK TYPE FEET.

NO.	DATE	SUB. NO.	BY
5	2-17-71	54-136	S.T.
4	3-14-69	54-10	B.V.
3	1-20-69	54-6	W.R.
2	9-17-68	54-2	J.C.
1	7-10-68		J.C.

REVISIONS

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES, MINORU YAMASAKI, ARCHITECT
EMERY ROTH & SONS, RICHARD ROTH, ARCHITECT
WORTHINGTON, SKILLING, KELLE & JACKSON, STRUCTURAL ENGINEERS
JAROS, BAUM & BOLLES, MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES, ELECTRICAL ENGINEERS
THE PORT OF NEW YORK AUTHORITY, PAVING, UTILITIES, FOUNDATIONS

TITLE: EQUIPMENT SCHEDULE NO. -1

DRAWN	P.J.T	CHECKED	F.A.S.
SCALE	NONE	DATE	5-15-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-26		

KEY OF SYMBOLS

REQ'D	SERVICE	SYM. SYMBOL	SYMBOL
●	SOIL	——S——	S
●	WASTE	——W——	W
	ACID WASTE	——AW——	AW
	INDIRECT WASTE	——IW——	IW
●	LEADER	——L——	L
●	VENT	——V——	V
	ACID VENT	——AV——	AV
	VAPOR VENT	——VV——	VV
●	BURIED PIPING, W/SERVICE NOTED	——BS——	
●	UNDERSLAB PIPING W/SERVICE NOTED	——US——	
●	EJECTOR DISCHARGE	——EJD——	EJD
●	SUMP DISCHARGE	——SD——	SD
●	COLD WATER (STRAIGHT POTABLE)	——CW——	CW
	COLD WATER (TANK ZONE-1)	——CW₁——	CW-1
	COLD WATER (TANK ZONE-2)	——CW₂——	CW-2
	COLD WATER (TANK ZONE-3)	——CW₃——	CW-3
	COLD WATER (PNEUMATIC TANK)	——CWPT——	CWPT
	HOT WATER (TANK ZONE-1)	——HW₁——	HW-1
	HOT WATER (TANK ZONE-2)	——HW₂——	HW-2
	HOT WATER (TANK ZONE-3)	——HW₃——	HW-3
●	HOT WATER (STRAIGHT POTABLE)	——HW——	HW
	HOT WATER (PNEUMATIC TANK)	——HWPT——	HWPT
●	HOT WATER CIRCULATION (STRAIGHT POTABLE)	——HWC——	HWC
	HOT WATER CIRCULATION (TANK ZONE-1)	——HWC₁——	HWC-1
	HOT WATER CIRCULATION (TANK ZONE-2)	——HWC₂——	HWC-2
	HOT WATER CIRCULATION (TANK ZONE-3)	——HWC₃——	HWC-3
	HOT WATER CIRC. (PNEUMATIC TANK)	——HWCPT——	HWCPT
●	SOFT BALL DRIP DISCHARGE	——SB——	SB
	CHILLED DRINKING WATER	——D——	D
	CHILLED DRINKING WATER CIRCULATION	——DC——	DC
	DISTILLED WATER	——DW——	DW
	DEIONIZED WATER	——DEW——	DEW
	SOFTENED COLD WATER	——SCW——	SCW
	SOFTENED HOT WATER	——SHW——	SHW
	180° HOT WATER	——180°HW——	180°HW
	180° HOT WATER CIRCULATION	——180°HWC——	180°HWC

REQ'D	SERVICE	SYM. SYMBOL	SYMBOL
	PUMP DISCHARGE	——PD——	PD
◎	FIRE STANDPIPE	——FSP——	FSP
●	SPRINKLER PIPING	——SP——	SP
	VACUUM CLEANING	——VC——	VC
	GAS PIPING	——G——	G
	COMPRESSED AIR PIPING	——A——	A
	VACUUM PIPING	——V——	V
	NITROGEN PIPING	——N——	N
	NITROUS OXIDE PIPING	——NO——	NO
	OXYGEN PIPING	——O——	O
	HYDROGEN PIPING	——H——	H
●	TEMP. DRY FIRE STANDPIPE	——TDFSP——	TDFSP

VALVES

●	CHECK VALVE	CV
●	HAND VALVE ON HORIZONTAL	
●	VALVE ON VERTICAL	
●	O.S.&Y. VALVE	
●	SOLENOID VALVE	SV
●	PRESSURE RELIEF VALVE	RV
●	PRESSURE REDUCING VALVE (FLAN)	PRV
●	DIAPHRAGM VALVE	DV
	3-WAY DIAPHRAGM VALVE	
	3-WAY HAND VALVE	
●	VACUUM BREAKER	VB
●	AIR VENT VALVE	AVV

FITTINGS

●	SINGLE C.O. RUNNING TRAP	
●	DOUBLE C.O. RUNNING TRAP	
●	TRAP W/C.O. BRTWD TO COOP.	
●	CLEANOUT DECK PLATE	CODP
●	AUTO BALL DRIP	ABD
●	FIRE HOSE RACK	HR
●	FIRE HOSE CABINET	HC
●	HOSE GIBS	H.G.
●	WALL HYDRANT	W.H.
●	BOX HYDRANT	B.H.
●	THERMOMETER WELLS	

WATER HAMMER ARRESTORS ALTERNATE TO AIR CHAMBERS

BRANCH SIZE	SIOUX CHIEF NO.*	MAX PRESSURE	MAX LENGTH OF BRANCH RUN
¾"	100	90	25'
1"	100	90	25'
1¼"	300	80	25'
2"	400	60	25'
2½"	600	90	25'

* ZURN INDUSTRIES INC.

NOTE: LOCATE ARRESTORS AT TOP OF THE BRANCH PRIOR TO FIXTURES AS INDICATED ON ¼" SCALE DETAILS.

FIXTURE CONNECTION SCHEDULE

FIXTURES		SUPPLY			WASTE			VENT			REMARKS
		C.W.	H.W.								
WATER CLOSETS											
WALL HUNG	FLUSH VALVE	●	●		4"	15"	16"	2"	3'-3"		
WALL HUNG	FLUSH VALVE	●	●		4"	15"	16"	2"	3'-1"		HANDICAPPED
FLOOR MOUNTED	FLUSH VALVE				4"	15"	16"	2"			
FLOOR MOUNTED	FLUSH TANK				4"	15"		2"			
URINALS		¾"	¾"								
	WASH-OUT	●	●		2"	15"		2"	2'-6"		
	SIPHON JET				2"	15"		2"	2'-8"		
	FLUSH OUTLET				2"	15"		2"			
LAVATORIES		½"	½"								
		●	●		1¼"	15"	6"	1½"	2'-6"		ABOVE
		●	●		1¼"	15"	6"	1½"	2'-5"		ABOVE
SLOP SINKS		½"	½"								
	WALL HUNG	●	●		2"	15"	8"	2"			
	FLOOR MOUNTED				2"	15"	8"	2"			
	CAST STONE	●	●		2"	15"	8"	2"			
SHOWERS		½"	½"								
		●	●		2"	15"	8"	2"	6'-8"		ABOVE TO SHOWER HEAD
DRINKING FOUNTAIN		●	●		1¼"	15"	6"	1½"			
DENTAL UNIT, CUSPIDOR				P.M.	1½"	15"		1½"	5'		
SERVICE SINK		●	●	P.M.	3"	15"		2"			SEE DETAILS ON P-2E-21
BATH TUBS											
JANITOR		½"	½"	P.M.	2"	15"	8"	2"			
	WASHDOWN				3"	15"	9"	2"			
	LABORATORY				2"	15"	8"	2"			

* ½" C.W. TO W.C. FLUSH VALVE ** ABOVE FIXTURE

GENERAL NOTES:

1- FOR PLUMBING & SPRINKLER DWG'S NO'S. & TITLES SEE ARCH. DWG. A-VC-2

2- WHERE PLENUM PARTITION PENETRATIONS ARE REQUIRED BECAUSE OF PIPING, PROVIDE 18 GAUGE STEEL SHEET, FULL SIZE OF GYPSUM WALL CLOSURE SHEET AS INDICATED ON ARCH. DWG.

3- PIPING SHOWN DOUBLE LINE IS TENTATIVE & CONTRACTOR SHALL NOT INSTALL UNTIL AUTHORIZED BY THE ENG. / AUTH.

4- PIPING INDICATED AS BEING IN THE EXISTING TUBE REMOVAL AREA (SHADED AREA ON DWGS.) SHALL NOT BE INSTALLED UNTIL TUBES ARE REMOVED & SLAB IS PATCHED.

PUMPS

	DESIGNATION	No. REQUIRED	G.P.M.	MAX. T.D.H.	MIN. T.D.H.	MECH. SEAL	MODEL	STAGES	VERT. SPLIT	HORIZ. SPLIT	WORKING PRESS	H.P.	R.P.M.	VOLTS	PHASE	CYCLE	MANUAL CONT'L	STARTING STEPS	AUTO. CONT'L	PILOT LIGHT	PRESSURE GUAGE RANGE	METAL BASIN	CONCRETE PIT
**	SUMP PUMP ELEV. PIT	1	20	23	⚠		SS-805-RJT					⅓	1750	120	1	60			●	●			●
*	SUMP PUMP No. 1	3	350	94	84		6-CHKU-4-FC					20	1750	460	3	60			●	●			●
*	2	3	350	94	84		6-CHKU-4-FC					20	1750	460	3	60			●	●			●
*	3	3	350	90	80		6-CHKU-4-FC					20	1750	460	3	60			●	●			●
*	4	3	350	90	80		6-CHKU-4-FC					20	1750	460	3	60			●	●			●
*	EJECTOR PUMP No. 1	2	350	102	84		6-CSBMU-4-FC L-C-6588					20	1750	460	3	60			●	●			●
*	2	2	350	110	86		6-CSBMU-3-FC L-C-6588					20	1750	460	3	60			●	●			●
*	3	2	350	105	85		6-CSBMU-4-FC L-C-6588					20	1750	460	3	60			●	●			●
*	4	2	350	110	86		6-CSBMU-4-FC L-C-6588					20	1750	460	6	60			●	●			●
*	5	2	350	105	85		6-CSBMU-4-FC L-C-6588					20	1750	460	3	60			●	●			●
*	6	2	350	98	83		6-CSBMU-4-FC L-C-6588					20	1750	460	3	60			●	●			●
	H.W. CIRC. * *	1	10	6			100					1/12		115	1	60							
*	SUMP PUMP No. 5	3	450	94	84		6-CSBMU-4-FC					25	1750	460	3	60			●	●			●
⚠																							

* WEIL PUMP Co. ** BELL & GOSSETT Co.

H.W. HEATER ** (1 REQ'D - LOCATED IN JANITOR'S CLOSET NORTH AREA PLATFORM 'C' EL. 250'-0")

PROVIDE (1) 100 GAL. H.W. TOTAL OF (100) ELECTRIC WATER HTR. - COPPER SILICON 480 V. 3 PHASE, 60 CY. A.C. AS MANUFACTURED BY RUSSELL (THE) ELECTRIC WATER CO. STRATFORD, CONN.) OR EQUAL.

** WEIL PUMP CO.- PROVIDE ONE SUMP PUMP IN EACH ELEV. PIT WHERE INDICATED ON PLUMBING DWG'S.

MATERIAL SCHEDULE

SYSTEMS	PIPE: REQUIRED	C.I.	STL. SCHED. 40	STL. SCHED. 80	BLACK	GALVANIZED	C.T.	R.P.	C.W.P.	D.I.S.P. (CLASS I)	D.I.S.P. (MECH. JOINT)	TAR COATED	FITTINGS: C.I. SOIL	C.I. DRAINAGE	STD. C.I. - 175# W.W.P.	EX. H. C.I. - 400# W.W.P.	STD. C.I. FLG. - 175# W.W.P.	STD. WALL - 300# W.W.P.	TAR COATED	CAST BRONZE - 175# SCREWED THREAD, 150# - W.W.P.	CAST IRON - 250# FLANGED DUCTILE IRON - 300# FLANGED	CLASS 2 (MECH. JOINT)	CLASS D ##	CLASS I (MECH. JOINT)	BLACK	GALVANIZED	JOINTS: CAULKED	THREADED	SOLDERED	WELDED	BRAZED	MECH. JOINT
DRAINAGE (BURIED)	●	●										●	●						●												
VENTS (BURIED)	●	●										●	●						●												
HOUSE DRAINS FROM TOWERS-UP TO 10'-0" OF HOUSE TRAP	●		●			●								●											●		●				
* HOUSE DRAINS EXCEPT FROM TOWERS	●	●	●			●							●	●											●		●				
* SANITARY & WASTE STACKS	●	●	●			●							●	●											●		●				
* SANITARY & WASTE BRANCHES	●	●	●			●							●	●											●		●				
* LEADERS (EL 155' & BELOW)	●	●	●			●							●	●											●		●				
STORM HOUSE SEWERS	●								●															●						●	
* VENTS	●	●	●			●							●		⚠			●	⚠								●	●			
C.W. 3½" & SMALLER	●							●													●								●		
C.W. 4" & LARGER	●							●													●								●		
DRINKING WATER																															
** C.W. BY [illegible] G METER ROOMS (90' OUTSIDE SLURRY WALL TO FLANGE INSIDE ROOMS)	●								●																			●		●	
H.W.	●							●													●								●		
BURIED C.W.																															
FIRE STANDPIPE	●			●																					●		●				
COMBINED HOUSE SEWERS (IN UTILITY RACK)	●									●																				●	
COMPRESSED AIR																															
SOAP SYSTEM																															
SUMP & EJECTOR DISCH. (BURIED)	●										●																				
SUMP & EJECTOR DISCH. (NOT BURIED)	●		●			●								●													●				
*** RIVER WATER DRAINAGE (REFRIGERATION PLANT) ⚠	●									●														●						●	

* CONTRACTORS OPTION TO USE EITHER C.I. OR STEEL PIPING SYSTEM.

** CONTRACTOR'S OPTION

*** CEMENT LINED DUCTILE IRON SEWER PIPE.

⚠

NO.	DATE	DRN.	CHK.
6	10-19-88	SG-TG	TJ
5	6-5-87	SG-TG	JC
4	3-19-87	SG-TG	JC
3	1-30-87	JG-G	JC
2	7-17-86	CG-2	JC
1	7-1-86		JC

REVISIONS

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS

JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY — PAVING, UTILITIES, FOUNDATIONS

TITLE: EQUIPMENT SCHEDULE NO-2

DRAWN: P.J.T. CHECKED: F.A.S.

SCALE: NONE DATE: 5-15-86

PROJECT NO. SHEET NO.

P-X-27

W 10400.00 | W 10300.00 | W 10200.00 | W 10100.00 | W 10000.00 | W 9900.00 | W 9800.00

N 5200 | N 5100 | N 5000 | N 4900 | N 4800 | N 4700

N 5275.00 W 10191.68 | N 5208.21 W 10018.87 | N 5200.00 W 9838.90 | N 5060.80 W 9838.00 | N 4821.50 W 9783.00 | N 4826.00 W 10280.00 | N 4135.00

N 5094.40 W 10275.80 | N 5041.87 W 10335.84 | N 5088.56 W 10081.81 | N 5014.16 W 10375.59 | N 4981.90 W 10431.90 | N 4985.22 W 10438.96 | N 4951.07 W 10467.56 | N 4952.06 W 10437.40 | N 4998.91 W 10413.62 | N 4994.28 W 10384.27 | N 4932.45 W 10421.56

See Detail 1, Dwg. R-77 (WTC-130.002) for connection to C.I. Pipe at Retaining Wall (Typ.)

EJECTOR No. 1 | EJECTOR No. 2 | EJECTOR No. 3

SUMP PIT #1 | SUMP PIT #2 | SUMP PIT #3

EXIST. PATH TUBE

TOWER "A"

NOTE: FOR TRENCHES IN TOWER "A" SEE DWG R-72 & R-85 OF WTC-130.002

Inv El 239.75 | Inv El 242.00 | Inv El 239.83 | Inv El 247.50 | Inv El 247.42 | Inv El 242.16 | Inv El 239.37 | Inv El 239.38 | Inv El 239.64 | Inv El 239.65 | Inv El 239.72

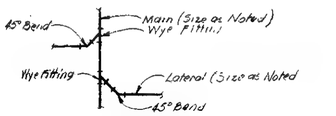
C.O.D.P. | PITCH | 6"X5. | 8"X5. | 10"X5. | 12"X5. | 16"X5.

Track No. 1 | Track No. 2 | Track No. 3 | Track No. 4

E Column 436 | E Column 433

NOTE:

1. ALL PIPES IN TRACK AREA SHALL BE EXTRA STRENGTH POROUS CONCRETE PIPE.
2. ALL MAINS 10 & 12" SHALL PITCH @ 1/8"/1.0'-0"
3. ALL 6" LATERALS IN THE PLAZA AREA SHALL BE RUN FLAT WITH A INV ELEV 239.83 UNLESS OTHERWISE NOTED.
4. ALL 6" LATERALS IN THE TRACK AREA SHALL BE RUN FLAT WITH A INVERT EL. 242.00 UNLESS OTHERWISE NOTED.
5. BACKFILL FOR ALL 10" OR 12" MAINS SHALL BE TYPE 1 FILTER.
6. FOR TRENCH LOCATIONS SEE DWG R-30 THRU R-74 OF WTC 130.002



TYPICAL LATERAL & MAIN CONNECTION
Not to Scale

MATCH LINE N 4135.00

REV. NO.	CHIEF ENGINEER
2	
3	

NO	DATE	BY	DESCRIPTION	CHIEF STR. ENGINEER
2	6/16/69	J.S.	Revised Porous Pipe Layout to Conform to Trenches as Shown in Dwg. R-60 of WTC-130.002	
3	7/25/69	J.S.	Added Porous Pipes under Corner Diaphragm	

1 9 6 8 | J.P.

NO DATE SUB. NO. BY — REVISIONS | NO DATE SUB. NO. BY — REVISIONS

CHIEF STRUCTURAL ENGINEER

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT
EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT
WORTHINGTON, SKELLING, HELLE & JACKSON — STRUCTURAL ENGINEERS
JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS
THE PORT OF NEW YORK AUTHORITY — CIVIL, UTILITIES, FOUNDATIONS

TITLE: SUB GRADE PLAN - ZONE J
SUB - DRAINAGE PLAN

DRAWN	CHECKED
SCALE	1/16" = 1'-0"
TE	May 15, 68
PROJECT NUMBER	SHEET OF
DRAWING NUMBER	PX-50

MATCH LINE N. 4795.00

N.4700.00

N.4600.00

N.4500.00

N.4400.00

N.4300.00

N.4589.80 W.10208.60

N.4549.32 W.10262.77

N.4532.00 W.10297.25

N.4532.33 W.10272.29

N.4564.06

N.4501.48 W.10275.79

N.4495.00

N. 4500.81 W. 10247.36

N.4479.59 N.10240.66

N.4475.90 W.10174.90

N.4258.00 W.10108.30

N.4264.95 W.9912.30

N.4505.90 W.9679.11

N.4485.80 W.9659.30

N.4249.37 W.9625.00

INV. EL 239.60 — C.O.D.P. — PITCH — INV. EL 239.85 — C.O.D.P.

EJECTOR No. 4

INV. EL 242.00 — INV. EL 239.85

INV. EL 239.60 — PITCH — INV. EL 239.57 — C.O.D.P. — PITCH — INV. EL 239.71 — C.O.D.P.

SUMP PIT #5

INV. EL 239.48 — PITCH — INV. EL 239.60

SUMP PIT #4

INV. EL 239.39 — INV. EL 239.84 — C.O.D.P. — INV. EL 239.50

EJECTOR #3

See Detail 1, Dwg. R-77 (WTC-130.002) for Connection to El. Pipe of Retaining wall (Typ.)

INV. EL 239.63 — C.O.D.P. — PITCH — INV. EL 239.73

INV. EL 239.73 — C.O.D.P.

CONNECT TO 6" ø POROUS PIPE HEADER

EJECTOR NO. 6 — INV. EL 239.83

INV. EL 241.66 — C.O.D.P.

NOTE: FOR TRENCHES IN TOWER "B" SEE DWG. R-77 (WTC-130.002)

TOWER "B"

INV. EL. 239.83 — PITCH — INV. EL. 241.66

INV. EL 241.83 — C.O.D.P.

INV. EL 247.45 — C.O.D.P.

TRACK #3

TRACK #2

TRACK #1&2

NOTE

1. ALL PIPES IN TRACK AREA SHALL BE EXTRA STRENGTH POROUS CONCRETE PIPE.
2. ALL MAINS 10" & 12" SHALL PITCH @ 1/8"/10'-0".
3. ALL 6" LATERALS IN THE PLAZA AREA SHALL BE RUN FLAT WITH AN INVERT EL. 239.83 UNLESS OTHERWISE NOTED.
4. ALL 6" LATERALS IN THE TRACK AREA SHALL BE RUN FLAT WITH AN INVERT EL. 242.00 UNLESS OTHERWISE NOTED.
5. BACKFILL FOR ALL 10" OR 12" MAINS SHALL BE TYPE I FILTER.
6. FOR TRENCH LOCATIONS SEE DWG. R-60 THRU R-74 OF WTC 130.002.

REV. NO.	CHIEF ENGINEER
2	
3	

NO.	DATE	BY	DESCRIPTION	CHIEF SITE ENGINEER
2	4/16/69	I.S.	REVISED POROUS PIPE LAYOUT TO CONFORM TO TRENCHES AS SHOWN IN CONTR. C-60 TO R-74 OF WTC-130.002	
3	7/25/69	I.S.	ADDED POROUS PIPES UNDER CORNERS DIAPHRAM	

REVISIONS — NO. DATE BY DESCRIPTION — NO. DATE BY DESCRIPTION

CHIEF ENGINEER — CHIEF STRUCTURAL ENGINEER — APPROVED — CHIEF, PLANNING DIVISION — DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES — MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS — RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON — STRUCTURAL ENGINEERS

JAROS, BAUM & BOLLES — MECHANICAL ENGINEERS

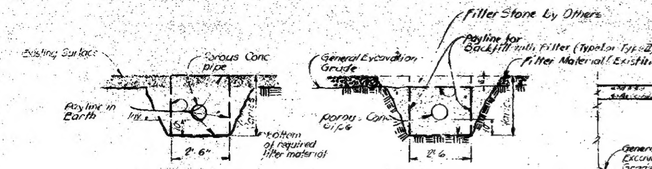
JOSEPH R. LORING & ASSOCIATES — ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY — PATERNO & BYRNE, INC. — FOUNDATIONS

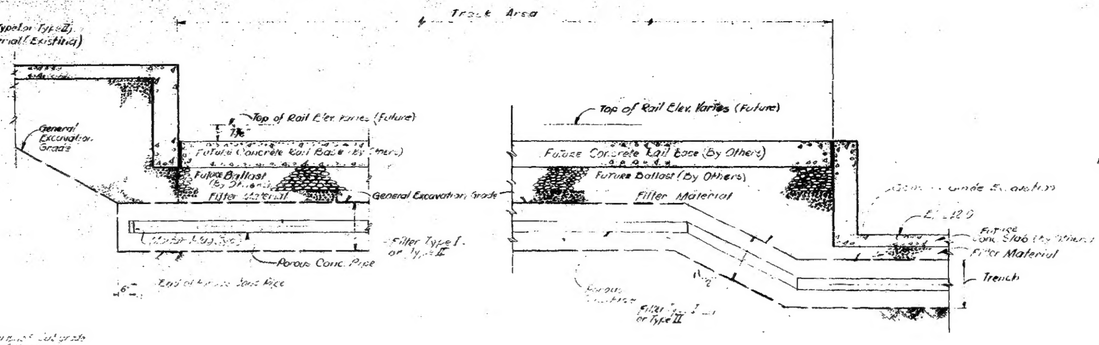
TITLE: SUB GRADE PLAN - ZONE K

SUB - DRAINAGE PLAN

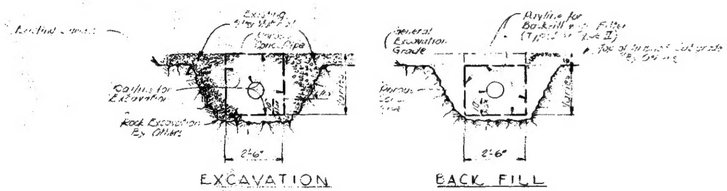
DRAWN	C.N.L.	CHECKED	
SCALE	1/16" = 1'-0"	DATE	May 15, 68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	PX-51		



DRAINAGE TRENCH IN EARTH

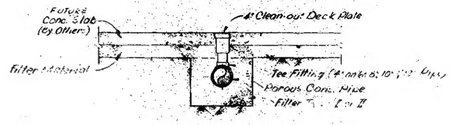


TYPICAL CROSS-SECTION THROUGH TRACK AND PLATFORM AREA

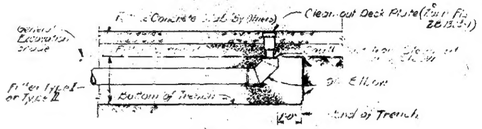


DRAINAGE TRENCH IN ROCK

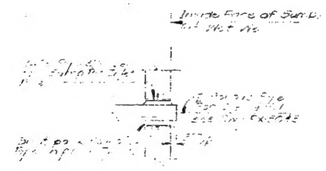
NOTE:
FILTER SHALL BE TYPE I OR TYPE II (SEE SPECIFICATIONS) AS DETERMINED BY THE ENGINEER IN THE FIELD.



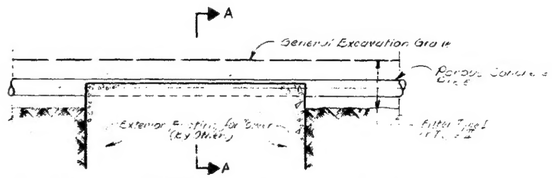
TYPICAL CLEAN-OUT CONNECTION
SCALE: 1"=1'0"



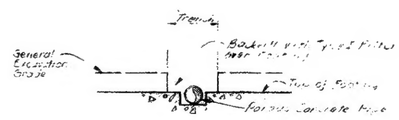
TYPICAL END OF PIPE
CLEAN-OUT CONNECTION
SCALE: 1"=1'0"



TYPICAL DETAIL OF POROUS CONCRETE PIPE OVER EXTERIOR TOWER FOOTING



DETAIL OF POROUS CONCRETE PIPE OVER EXTERIOR TOWER FOOTING



SECTION A-A

NOTE:
1. FOR GENERAL EXCAVATION GRADES SEE CONTRACT WTC-180.002, DRAWINGS No. R-60 THRU R-71 INCLUSIVE.
2. FOR TRENCH LOCATIONS SEE DWGS E-60 THRU E-74 OF WTC-180.002.

NO.	DATE	BY	DESCRIPTION
2			CHIEF ENGINEER
1	7-8-68		REVISED POROUS PIPE LAYOUT TO CONFORM TO OUTLINES AS SHOWN IN THIS A 60 TO R-71 OF WTC-180.002

CHIEF STR. ENGINEER

REVISIONS

APPROVED
CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, MELLE & JACKSON
STRUCTURAL ENGINEERS

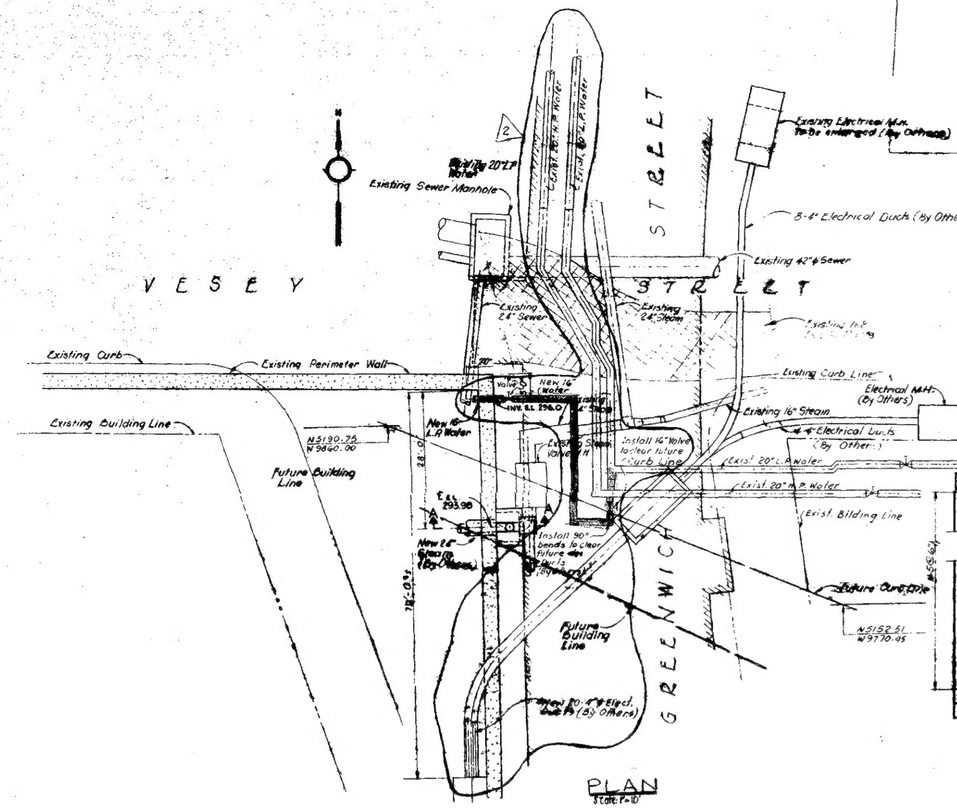
JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

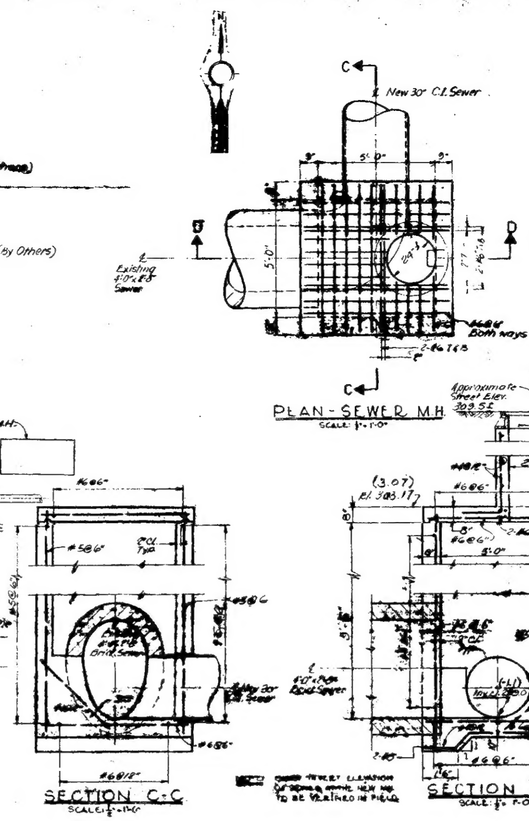
JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

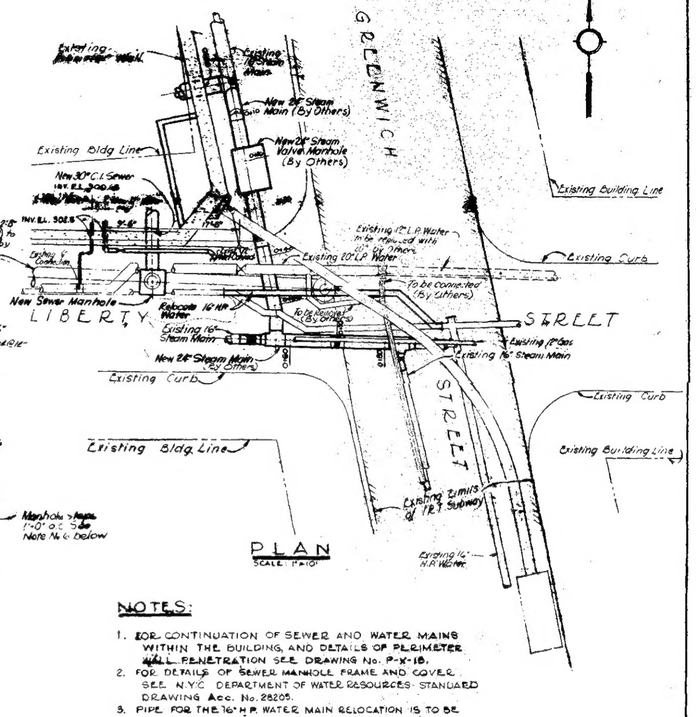
THE PORT OF NEW YORK AUTHORITY
PAYING, UTILITIES, FOUNDATIONS

TITLE: SUB-GRADE PLAN
SUB-DRAINAGE DETAILS

DRAWN	E.M.F.	CHECKED	
SCALE	1"=1'0"	DATE	1-7-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	PX-52		







NOTES:

1. FOR CONTINUATION OF SEWER AND WATER MAINS WITHIN THE BUILDING, AND DETAILS OF PERIMETER WALL PENETRATION SEE DRAWING No. P-X-18.
2. FOR DETAILS OF SEWER MANHOLE FRAME AND COVER SEE N.Y.C. DEPARTMENT OF WATER RESOURCES STANDARD DRAWING Acc. No. 28205.
3. PIPE FOR THE 16" N.P. WATER MAIN RELOCATION IS TO BE SALVAGED FROM EXISTING MAIN.
4. ALL CAST-IN-PLACE CONCRETE IS TO BE CLASS "D"
5. CUT OR DAMAGED EXISTING PAVEMENT SHALL BE PATCHED USING "SHELL-CO-MIX" COLD ASPHALT CONCRETE OR EQUAL; APPLIED AND COMPACTED IN NOT MORE THAN TWO INCH THICK COURSES TO A TOTAL THICKNESS OF NOT LESS THAN SIX INCHES. ALLOW TWENTY-FOUR HOURS BETWEEN COURSES.
6. FOR DETAILS OF WROUGHT IRON MANHOLE STEPS SEE N.Y.C. DEPARTMENT OF WATER RESOURCES STANDARD DRAWING No. Acc No. 28721.
7. ELEVATIONS SHOWN ( ) REFER TO MANHATTAN DATUM WHICH IS 2.75' ABOVE MEAN SEA LEVEL AT SANDY HOOK, NEW JERSEY.

REV. No.	CHIEF ENGINEER
1	
2	

CHIEF ENGINEER

NO.	DATE	REVISIONS	BY
1	3/16/70	In Service T.S.	
2	3/14/80	Min Rqd Wtr.	

CHIEF, PLANNING DIVISION
DATE

THE WORLD TRADE CENTER
THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PATRO: MECHANICAL, FOUNDATIONS

TITLE: OUTSIDE UTILITY CONNECTIONS
WATER AND SEWER

DRAWN	P.H.F.	CHECKED	
SCALE	As Shown	DATE	MAY 15, 1980
PROJECT NUMBER	WTC-501.00	SHEET	OF
DRAWING NUMBER	P-X-50		

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES
MINORU YAMASAKI, ARCHITECT

EMERY ROTH & SONS
RICHARD ROTH, ARCHITECT

WORTHINGTON, SKILLING, HELLE & JACKSON
STRUCTURAL ENGINEERS

JAROS, BAUM & BOLLES
MECHANICAL ENGINEERS

JOSEPH R. LORING & ASSOCIATES
ELECTRICAL ENGINEERS

THE PORT OF NEW YORK AUTHORITY
PAVING, UTILITIES, FOUNDATIONS

TITLE: F.S.P. RISER DIAGRAM

DRAWN	F. A.	CHECKED	F. A. S.
SCALE	NO SCALE	DATE	3-4-68
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	P-X-5-6-68		

REVISIONS

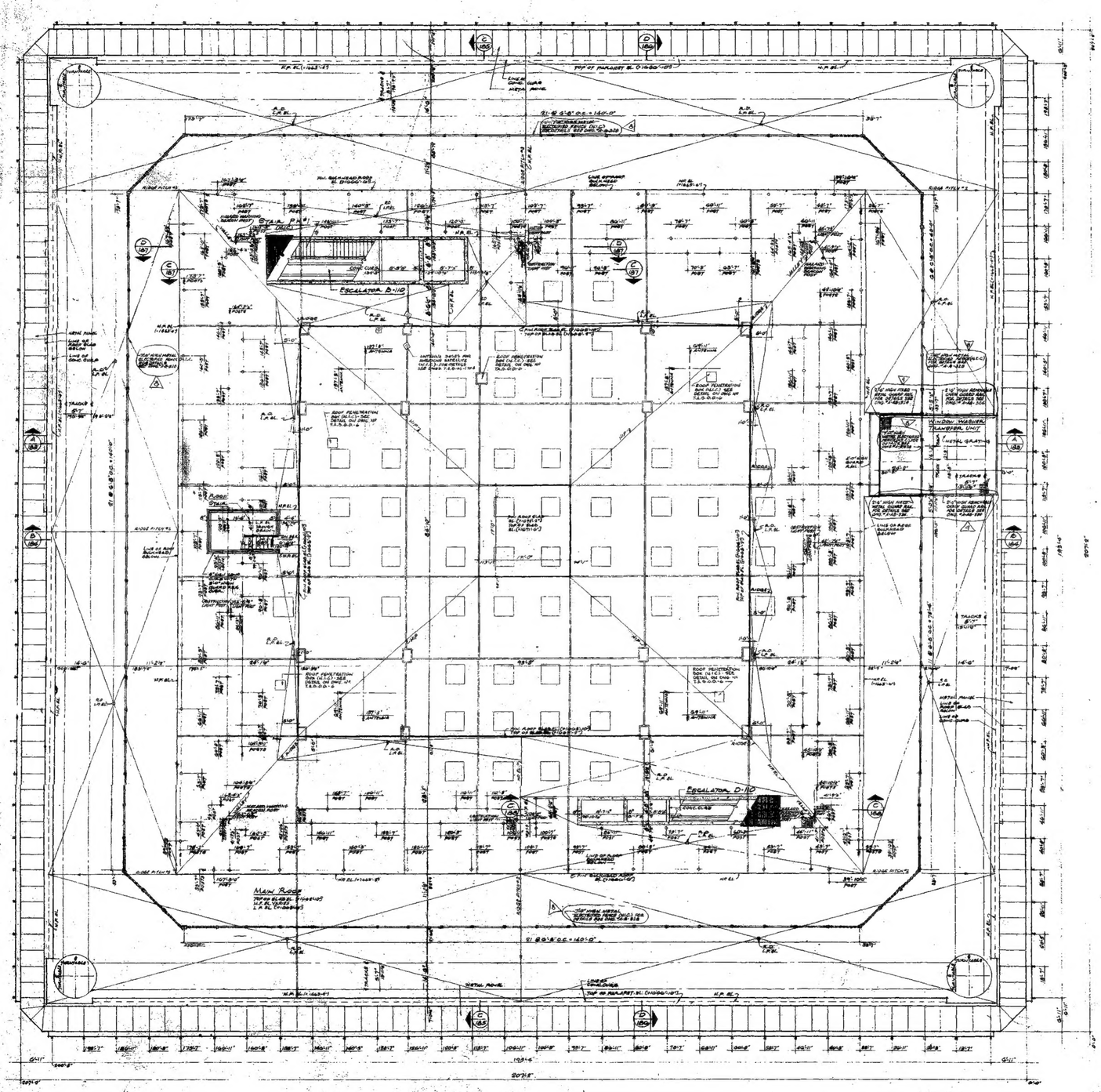
NO.	DATE	SUB. NO.	BY
1	6-7-74	SJC	

APPROVED

CHIEF, PLANNING DIVISION

DATE

FILE AT END OF SUB GRADE PLUMBING



NORTH

NOTES:

1. FOR GENERAL NOTES, KEY TO MATERIALS, REVISIONS, ABBREVIATIONS PLUMBING SCHEDULES, LEGEND, SCHEDULES AND SEQUENCE OF DRAWINGS SEE DRAWING A-0-1 TO A-0-10.
2. ALL ELEVATIONS SHOWN THUS (0'-0") ARE IN RELATION TO DATUM (WTC DATUM).
3. ALL ELEVATIONS SHOWN THUS (0'-0") ARE IN RELATION TO DATUM OF BUILDING.
4. FOR MECHANICAL AND ELECTRICAL LAYOUTS SEE ARCHITECTS BUILDERS DRAWINGS.
5. ALL ELEVATIONS WHEN THUS (0'-0") ARE GIVEN IN RELATION TO BUILDING DATUM.

1/8"=1'-0" 0 4' 8' 16' 24'

CONTRACT 815 DRAWING date

BULLETINS, NOT DATED ARE IN THE PROCESS OF COMPLETION

NO.	DATE	BULL. NO.	BY
1	5-30-74	B-268	LJ.
2		B-288	LJ.
3	10-74	B-346	DS.
4	2-9-75	B-387	L.J.
5	3-5-75	B-407	DS.
6	10-23-75	B-458	DS.
7	10-23-75	B-496	DS.
8	9-7-76	B-465	LC.
9	1-23-77	B-537	LJ.

REVISIONS

APPROVED

CHIEF, PLANNING DIVISION

DATE

THE WORLD TRADE CENTER

THE PORT OF NEW YORK AUTHORITY

MINORU YAMASAKI & ASSOCIATES MINORU YAMASAKI, ARCHITECT	EMERY ROTH & SONS RICHARD ROTH, ARCHITECT
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON STRUCTURAL ENGINEERS	JAROS, BAUM & BOLLES MECHANICAL ENGINEERS
JOSEPH R. LORING & ASSOCIATES ELECTRICAL ENGINEERS	THE PORT OF NEW YORK AUTHORITY PAVING UTILITIES, FOUNDATIONS

TITLE: INTERMEDIATE BULKHEAD & ROOF DRAINAGE PLAN

DRAWN		TRACED	
SCALE	1/8"=1'-0"	DATE	NOV. 10, 76
PROJECT NUMBER		SHEET	OF
DRAWING NUMBER	A·B·W 4		

TOWER B | Plumbing Bulkhead & Roof